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DIAGNOSIS OF GASTRIC NEOPLASMS

By Cytologic Examination of Gastric Secretions

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The high incidence of gastric carcinoma together with its extremely low survival rate [1] provides adequate justification for the search and evaluation of new methods of diagnosis. This is particularly rational in view of the often repeated opinion that improvement in the end result of gastric carcinoma can be expected only from earlier diagnosis of the lesions.[2]

In 1946 Papanicolaou [3] reported on the diagnostic value of exfoliated cells from cancerous tissues. Although the technic which he discussed was applied largely to the diagnosis of neoplasms in the female genital tract, it was also utilized as an aid in the diagnosis of neoplasms of other systems, including the stomach. Since this early report the same observer has reported more extensive experiences in the diagnosis of gastric neoplasms by the examination of cells from the gastric juice.[4]

His results compared well with those of sputum and urine except for a somewhat higher percentage of false negative results. The increased number of false negative results was attributed to (1) rapid deterioration of cells in the gastric fluid unless the specimen was fixed immediately, (2) the absence of exfoliation in the relatively large group of scirrhous carcinomas which as a rule do not reach the mucosal surface and (3) the frequent presence of swallowed foreign cells from nasal, pharyngeal, tracheal and esophageal mucosae and of undigested foreign particles. These foreign elements tend to confuse the picture and to make the recognition of neoplastic cells more difficult.

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1. The Stomach, in Pack, G. T., and Livingston, E. M.: Treatment of Cancer and Allied Diseases, New York, Paul B. Hoeber, Inc., 1940, vol. 2. Walters, W.; Gray, H. K., and Priestly, J. T.: Carcinoma and Other Malignant Lesions of the Stomach, Philadelphia, W. B. Saunders Company, 1942.

2. State, D.; Varco, R. L., and Wangensteen, O. H.: An Attempt to Identify Likely Precursors of Gastric Cancer, J. Nat. Cancer Inst. **7**: 379, 1947.

3. Papanicolaou, G. N.: Diagnostic Value of Exfoliated Cells from Cancerous Tissues, J. A. M. A. **131**: 372 (June 1) 1946.

4. (*a*) Papanicolaou, G. N., and Cooper, W. A.: The Cytology of Gastric Fluid in the Diagnosis of Carcinoma of The Stomach, J. Nat. Cancer Inst. **7**: 357, 1947. (*b*) Papanicolaou, G. N.: The Cell Smear Method of Diagnosing Cancer, Am. J. Pub. Health **38**: 202, 1948.

Hunter and Richardson [5] modified the Papanicolaou procedure in that embedding and sectioning of the sediment from gastric juice were employed instead of the usual procedure of smearing the sediment. They claimed better results with this procedure, but offered no statistical data in regard to their results. More recently Meigs and his co-workers [6] reported their results employing the procedure of Papanicolaou. Of the 50 cases in which gastric aspiration was carried out, neoplasms were proved to be present in 24. The smear was positive for neoplastic cells in 15 instances. In 1 case there was a false positive result, since no neoplasm was found at operation, while in 2 other instances with positive smears no neoplasm was found grossly, but histologic examination revealed preinvasive carcinoma. These authors emphasized the value of the Papanicolaou procedure in detecting early gastric neoplasms.

Since July 1947, we have employed the Papanicolaou procedure in the study of gastric sediment. The microscopic examinations of the cells contained in the fasting gastric contents of 278 patients were carried out in an effort to evaluate this technic as an aid in the diagnosis of gastric carcinoma. In some cases more than one aspiration was performed on a single patient, so that altogether 326 aspirations were done. The group of patients studied were selected, in view of the fact that they all had gastrointestinal complaints. No attempt was made to use the technic as a screening or survey procedure. As nearly as possible, the technic advised by Papanicolaou [4a] was used throughout. After an overnight fast, the gastric contents were aspirated through a Levine tube, and to this material an equal volume of 95 per cent alcohol was added immediately. After centrifugation, the clear layer was discarded and the sediment was smeared and fixed. The slides were run through the usual solutions, strained and prepared for microscopic examination. This procedure was finally followed in the vast majority of the cases. This technic was compared to the results in which aspiration was carried out after alcohol or histamine stimulation of gastric juice. In some instances the stomach was washed out with 5 per cent sodium bicarbonate. We found little difference in either the preservation of gastric cells or their straining qualities.

All slides were studied by the same pathologist, one of us (H. C. B.), who found that, while some positive slides can be evaluated quickly, approximately twenty minutes are necessary before a negative preparation can be safely discarded. In some cases suspicious, but

5. Hunter, W. C., and Richardson, H. L.: Cytological Recognition of Cancer in Exfoliated Material from Various Sources: Useful Modification of Papanicolaou Technique, Surg., Gynec. & Obst. **85**: 275, 1947.

6. Fremont-Smith, M.; Graham, R. M., and Meigs, J. V.: The Cytologic Method in the Diagnosis of Cancer, New England J. Med. **238**: 179, 1948.

nonspecific, cellular changes make an absolute diagnosis by this method impossible, despite an infinitely prolonged period of study. The pathologist has repeatedly emphasized the fact that there is no single criterion of malignancy in the individual cell which may not occur in a normal cell and that the most dependable sign of

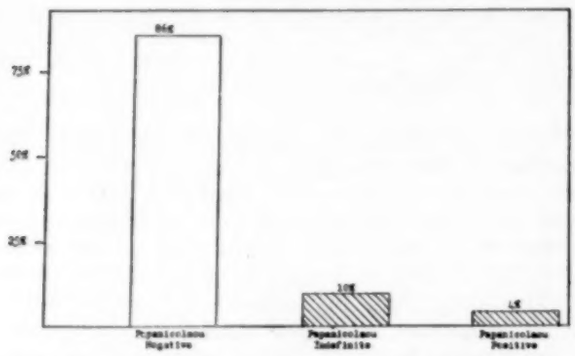

Fig. 1.—Results of cytologic study of gastric juice from patients in whom there was no clinical evidence of carcinoma of the stomach (one hundred and ninety-two aspirations).

malignancy, invasion of surrounding tissue, is not available in this type of examination.

Our effort to evaluate the procedure has consisted of comparing the diagnosis made by the microscopic study of the cells structure of the gastric juice with the clinical diagnosis. The clinical diagnosis is based on a thorough study of each case by the usual applicable methods, including the history, physical examination, roentgenography, gastroscopy and histologic study of material obtained at laparotomy or biopsy. This series includes only those cases in which it is felt that a final diagnosis has been established. Of the three hundred and twenty-six smears examined, only two hundred and ninety-six were satisfactory. In the other thirty, there was so much foreign material or the cells were in such a poor state of preparation that the histologic evaluation of the cells was impossible. The remaining material (two hundred and ninety-six smears) can be divided into four general categories.

GENERAL CATEGORIES

Group I: Clinically No Neoplasm.—The first group consists of one hundred and ninety-two aspirations in which full clinical evaluation disclosed no evidence of

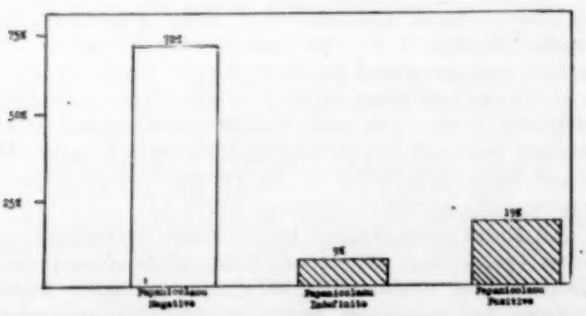

Fig. 2.—Results in patients with no histologic evidence of carcinoma of the stomach (forty-three aspirations).

carcinoma of the stomach. In this group 86 per cent of the aspirations were thought to contain no malignant cells. In 10 per cent the results of the cytologic examinations were indefinite, while 4 per cent were falsely reported as positive for carcinoma (fig. 1).

Group II: No Histologic Evidence of Neoplasm.—A second, and possibly more reliable group, is furnished by the fact that forty-three gastric samples were obtained from patients who were subsequently subjected to laparotomy (fig. 2).

In all of these cases, examination in the Pathology Department of part or all of the stomach revealed no evidence of carcinoma. While it is possible that lesions not evident grossly may have been missed, this is not likely in a significant number. In this group, microscopic study of the fasting gastric contents revealed only normal cells in 72 per cent. No definite conclusion could be drawn in 9 per cent of the aspirations, while in 19 per cent of the slides studied it was felt that malignant cells were identified.

Group III: Clinically Neoplasm.—Twenty gastric aspirations were done on patients in whom a final diagnosis of gastric carcinoma was made, in which no histologic confirmation of the diagnosis was obtained (fig. 3). Despite the clinical picture, no malignant

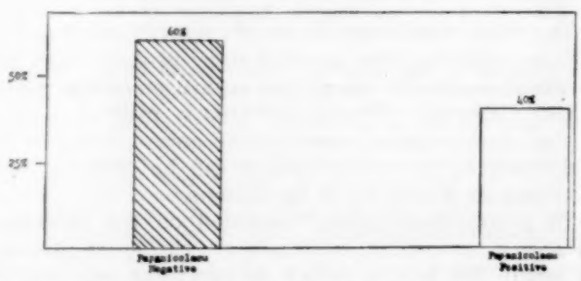

Fig. 3.—Results in patients with a clinical diagnosis of carcinoma of the stomach without histologic confirmation (twenty aspirations).

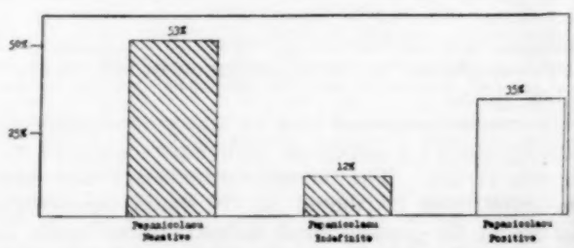

Fig. 4.—Results in patients with histologic diagnosis of carcinoma of the stomach (forty-one aspirations).

cells were found in the fasting gastric contents in 12 (60 per cent) of these cases, while a positive report was made in only 8 (40 per cent).

Group IV: Histologically Neoplasm.—We had an opportunity on forty-one occasions to examine the cell structure of the fasting gastric contents of patients who were later proved to have gastric carcinoma by laparotomy (fig. 4). No recognized malignant cells were encountered in 22 cases (53 per cent). Malignant cells were found in 14 cases (35 per cent), while in 5 cases (12 per cent) no definite conclusion could be reached.

By ignoring the previously considered clinical groups and tabulating the results of all gastric aspirations, one can gain a more complete picture of the results (fig. 5). We found that in 59 per cent of all the aspirations studied and reported as positive, the cytologic observations were confirmed by clinical and conventional histologic study. On the other hand, when the aspirations were reported as negative, results in 85 per cent of them coincided with the results in other studies.

In all those cases in which a final diagnosis of carcinoma of the stomach was made, the result in the aspiration technic was correct in 36 per cent (fig. 6). This may be said to represent the sensitivity of the procedure. In contrast, specificity is reflected by the fact that in all those cases in which no carcinoma was found, the result of the gastric aspiration technic was correct in 87 per cent.

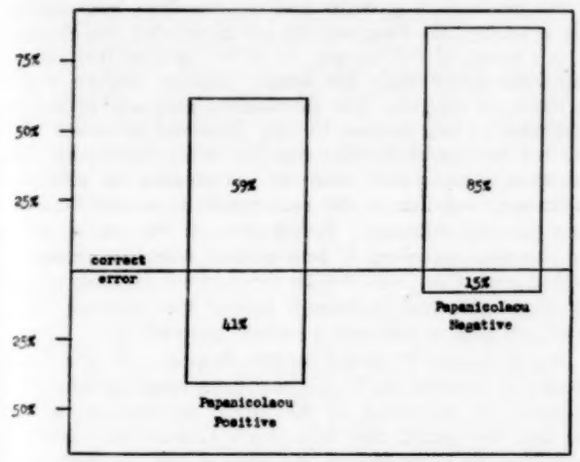

Fig. 5.—Results of gastric cytologic study, on the basis of conclusions drawn.

On some occasions, the cytologic study of the fasting gastric contents has proved itself of value in indicating the need for exhaustive clinical study. For example, the roentgenogram of the stomach of a 62 year old white man (fig. 7), who entered the hospital because of vague upper abdominal discomfort of a nonspecific character, showed some angulation of the lesser curvature, with retention, but the absence of a filling defect precluded the diagnosis of neoplasm. A second roentgenogram failed to clarify the situation. However, microscopic examination of the fasting gastric contents revealed definite malignant cells. The diagnosis of gastric carcinoma was then substantiated gastroscopically and proved at laparotomy.

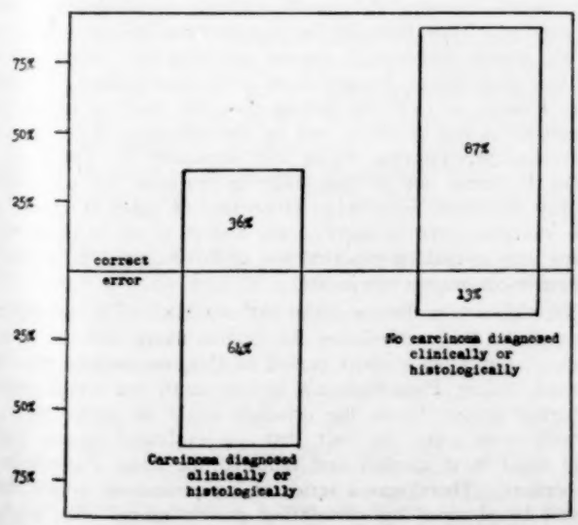

Fig. 6.—Results of clinical studies, on the basis of the conclusions drawn.

COMMENT

The results of the observations to date do not warrant a final conclusion. This series is too small to furnish reliable statistics. The passage of time may well modify the results. Further experience by the pathologist is certain to have some effect. Some of our diagnostic criteria which have been used as a yardstick in judging the technic may prove to have been in error in some cases. This is particularly likely in a large group of cases in which there is no histologic control. A close analysis of our data indicates that actually it reflects only the gross efficacy of the cytologic method for the diagnosis of gastric neoplasm.

There are several factors in addition to those[4b] which were reported that modify the results and cannot be considered actual inherent features of the method itself. First of all, the accuracy with which the pathologist can interpret such smears depends on the extent of his experience. Included in this series are all the early errors that were the result of lack of experience. As more slides were examined the number of errors was gradually diminished. A second factor that must be considered is that in several instances in which clinically there was undoubted gastric neoplasm, it was impossible to obtain good smears because of the retention of food and undigested materials. This was particularly true in those instances in which the neoplasm was so located as to produce obstruction either at the pyloric or at the cardiac end of the stomach. A third point to be mentioned is that in the vast majority of cases only a single aspiration was carried out. This point may not be too significant, in view of the fact that the error both positive and negative was just as great in those instances in which repeated aspirations were done as in the group as a whole when there was only a single aspiration.

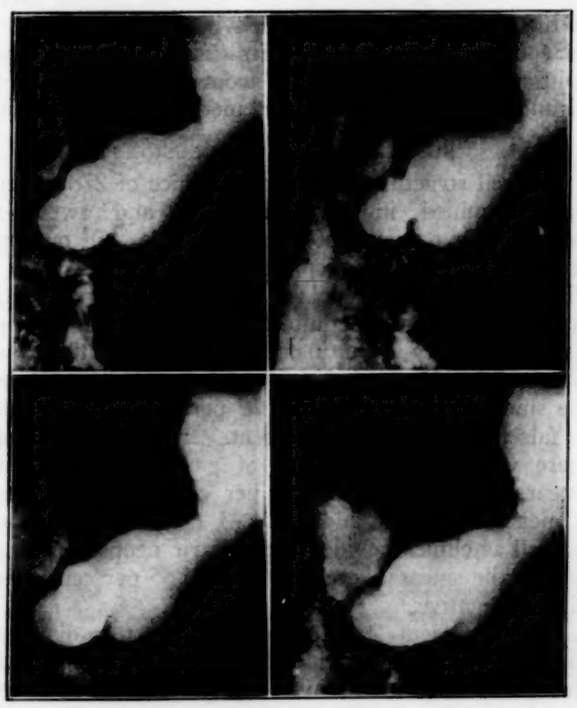

Fig. 7.—Roentgenogram of the stomach of a 62 year old man, showing some angulation of the lesser curvature, with retention; the absence of a filling defect precluded the diagnosis of neoplasm.

This is undoubtedly explained by the fact that aspirations were repeated in the questionable or difficult cases, whereas in the apparently clearcut case a single aspiration was considered adequate.

A final point to be considered is that this series was carried out on a group of patients all of whom had gastrointestinal symptoms. This study was not a survey of asymptomatic persons, and our data should not be interpreted as evaluation of this method in detecting early asymptomatic gastric neoplasms.

In general, however, the procedure has sufficient merit to warrant further trial. False positive reports have been sufficiently numerous to make it inadvisable to plan therapy on the basis of the gastric cytologic study alone. Conversely, a report that malignant cells are present in the fasting gastric contents is an indication that exhaustive studies should be done to rule out the presence of gastric carcinoma. Lastly, the procedure would be valueless and even dangerous except in the hands of a well trained pathologist. Even in such circumstances, difficulties inherent in the procedure will always prevent it from being more than an adjunct to the present accepted methods of examination.

SUMMARY AND CONCLUSIONS

The cell structure of the gastric juice of 278 patients was examined in three hundred and twenty-six instances for presence of neoplastic cells. Of one hundred and ninety-two aspirations in patients with no clinical evidence of neoplasm the smears were negative in 86 per cent and indefinite or falsely positive in 14 per cent. In forty-three instances in which there was histologic evidence of the absence of gastric neoplasms, the smears were negative in 72 per cent and indefinite or falsely positive in 28 per cent. In 20 cases in which there was clinical evidence of gastric neoplasm, the smears were positive in 40 per cent and negative in 60 per cent. In an additional 41 cases with histologic, as well as clinical, evidence of gastric neoplasm, 35 per cent of the smears were positive and 65 per cent indefinite or negative.

In the present state of development this diagnostic method should not provide the exclusive basis for either the positive diagnosis or the positive exclusion of gastric neoplasm. The method is valueless except in the hands of an experienced and specially trained pathologist.

ABSTRACT OF DISCUSSION

Dr. Warren C. Hunter, Portland, Ore.: As the diagnosis of gastric carcinoma is fraught with difficulty and uncertainty, every reasonable, safe and prompt diagnostic procedure is worthy of consideration, provided that it is soundly based. Such a procedure is the study of the exfoliating gastric fluid obtained by aspirating the empty stomach. For more than a year, at the University of Oregon Medical School, Dr. Howard L. Richardson and I have been studying such material in a group of unselected patients, most of whom have been furnished us as "unknown." Dr. M. E. Steinberg, of Portland, has carefully studied these cases, but the material came to us as unknown. We are in general agreement with the conclusions of the authors, although, by means of a simple modification which Dr. Block mentioned, the modification of the Papanicolaou smear technic, whereby we embed and section mucus rather than rely on a certainly less reliable smear, our percentage of proved positive results is now about 80. In our experience there is one type of carcinoma that will nearly always be missed by the method, namely, the large obstructive necrotic surface cancers, such as the type Dr. Block mentioned, the exfoliative cells of which are likely to be already in process of breaking down and thus likely to be unrecognizable. I am convinced from experience with a number of such cases that that is the reason why some very obvious carcinomas are missed. The cells are necrotic and cannot be recognized. The microscopic study of gastric mucus is of value as a means of recognizing not only cancer of the stomach but also cancer in the presence of gastritis and gastric ulcer, but, obviously, this is neither the time nor the place to enter into discussion of this phase of the matter. It is my opinion that not until something better than the smear, namely, treating material as tissue, is adopted, will pathologists give any serious consideration to this method for the diagnosis of cancer. They will not because of the fact that Dr. Block mentioned, chiefly the time factor, and what to pathologists is even more unpleasant, and that is the uncertainty of smears because of their varying thickness. Pathologists on the whole will not use smears; therefore, I believe that until we change this method somewhat, even though the principle is good, and until additional personnel is trained, neither this audience nor any other can hope to use such a method generally.

Dr. Maurice Fremont-Smith, Boston: At the Vincent Memorial Hospital in Boston we have been working on the diagnosis of carcinoma of the uterus by vaginal smear for the last five years, and Mrs. Ruth Graham has achieved a great deal of experience in the method and has been able to diagnose carcinoma of the cervix with 90 per cent accuracy. Since we started, about a year and a half ago, to examine gastric secretion, our results have been less satisfactory than Dr. Block's. In a series of about 75 cases, we have achieved only 50 per cent accuracy in a routine series. There is another small series of study cases not yet reported, in which our accuracy has been much more satisfactory than that, but manifestly statistically this method is not yet satisfactory. Our general diagnostic methods for detection of carcinoma of the stomach are puerile. At the Massachusetts General Hospital, in a series of patients operated on ten years ago, only 7 out of every hundred who came to the hospital with gastric carcinoma obtained a five year cure. Something better must be done in early diagnosis of gastric cancer. Continuous exfoliation of cells is taking place in the stomach, both from the normal mucosa and from the majority of malignant lesions, if present. Thus material for a continuous biopsy is present in the gastric secretion. I am not sure that the smear method, as first proposed by Papanicolaou, is the best method. Possibly Dr. Hunter is right in stating that the way to make this diagnosis is not by smear but by the collection of the gastric secretion, precipitating, fixing and sectioning it. The point I want to bring out is that there is material for continuous biopsy obtainable in a large proportion of cases of cancer of the stomach, even in early cases, and it is up to us to find some way of making practical use of this material in the early diagnosis of gastric carcinoma.

Dr. Malcolm Block, Ann Arbor, Mich.: In attempting to evaluate this method, we did fixation along with the smear technic, but after a short period of this, we decided that we should follow Papanicolaou's technic until we could decide whether in our hands the principle could be satisfactory. I briefly went over the fact that we evaluated gastric juice and fixed it in alcohol and followed the usual Papanicolaou procedure. There was a series of experiments in which juice could be obtained by stimulating gastric mucus with alcohol or histamine or by washing out with an irritant or some other material, such as sodium bicarbonate. We carried out a few experiments in the hope of obtaining exfoliative cells in a higher incidence of cases within the usual bounds of technic. We did not obtain exfoliated cells in more instances with whatever technic we used, provided that observations were carried out immediately. Likewise we found that there was no difference in the state of preservation of the cells. This problem is certainly still present, and there are many possibilities for further study of this method.

ALLERGIC FACTORS IN GOUT

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New York

A number of recent papers on gout refer to it as a forgotten disease, implying thereby that it is frequently overlooked. In a series of 100 patients reported by Hench [1] approximately fifteen years had elapsed from the first attack before a correct diagnosis was made. The average age of onset of gout is usually about 40. Although the majority of patients are men, women are not infrequently affected, and the disease has also been described in children.[2] It is generally recognized that the essential features of this condition consist of arthritis with or without podagra, hyperuricemia, deposits of sodium urate crystals in the articular, periarticular and subcutaneous tissues and, in a certain number of cases, of manifestations of cardiovascular or renal involvement. The complete reversibility of the arthritic attacks in the early stages and their irreversibility in the later phases, terminating in crippling chronic gouty arthritis with tophaceous deposits, are features which have been familiar to the physician and the laity for many generations.

Heredity plays an important role in this condition, and one of the most striking phenomena is the transmission in gouty families of hyperuricemia without the disabling symptoms of the disease. Talbott,[3] for example, reported high amounts of uric acid in the blood in 25 per cent of the relatives of gouty persons. Hyperuricemia is likewise frequently observed in a number of clinical conditions in the absence of gout or a family history. Thus patients with glomerulonephritis may have elevated blood uric acid without any gouty arthritis. Persons having leukemia and polycythemia as well as pernicious anemia may also present similar findings.

Nevertheless, the frequency of the association of hyperuricemia with gout serves to differentiate it from other forms of arthritis, although its exact role is not clear. There often is no relationship between the amount of uric acid in the blood and urine and the degree of arthritic involvement. Paroxysms of gout may occur on one occasion with normal and on another with elevated blood uric acid. The latter may be present between attacks when the patient is completely free of symptoms. Acutely affected joints have been found to be apparently free of urates, whereas certain symptomless joints have revealed extensive deposits of urates. Furthermore, there is no constant relationship between the formation or resorption of tophi and acute attacks.

Nor does the increase in bound uric acid reported by Adlersberg, Grishman and Sobotka [4] in 10 cases of gout in conjunction with hyperuricemia help to explain the causation of the gouty paroxysms. This is especially so since they also found abnormal uric acid partitions in about half of their patients with hepatitis, cirrhosis of the liver, prolonged obstructive jaundice and in 1 patient with suppurative cholangitis as well as in a case of leukemia with icterus. While a high titer of bound uric acid was admittedly not a constant finding in the patients with hepatic disease studied and clinical improvement did not necessarily follow a decrease in bound uric acid or vice versa, neither was this the case in all of the gouty patients under investigation. It is generally felt, therefore, that neither hyperuricemia nor abnormalities in the uric acid partition per se can be looked on as the provocative factors in the gouty attacks.

It is therefore necessary to look for some other contributory factors which may be responsible. The sudden explosive nature of the acute gouty seizure, its regression, especially in the early stages, without any residual involvement of the acutely affected joint, and the elicitation of symptoms by certain foods or alcoholic beverages have led certain European students of this problem [5] to suggest that allergy to these substances may play an important role in the pathogenesis of the disease. None of these investigators, however, has reported any cases in which pollen or the synergistic effect of pollen and foods played a role in the initiation of the gouty paroxysms.

The concept that allergy may at times be a factor in the development of gouty attacks carries with it both theoretic and practical significance, particularly when prophylaxis and treatment are considered. It is therefore of great importance to determine whether the various symptoms of gout are due essentially to a disturbance of purine metabolism as such, leading to retention of uric acid in the tissues, or whether the various arthritic, cardiovascular and renal manifestations may be precipitated by allergic reactions in a person handicapped by a hereditary defect in his purine metabolism. The following 3 cases reported in detail may serve to elucidate some of the points in question.

REPORT OF CASES

CASE 1.—Patient J. S., aged 25, was first admitted to Mount Sinai Hospital in January 1947. As a boy of 12 he suffered with periodic swelling of the knees, ankles, wrists and elbows, designated at the time as growing pains. These recurred three or four times a year and lasted a day or two. In September 1941, at the age of 20, while in the army he experienced an attack of arthritis involving both ankles and knees. This recurred in March 1942 and again in May and December of that year, when both elbows and wrists also became affected. He was discharged from the army in November 1943 with the diagnosis of arthritis. In February 1944 his right knee became swollen and in August of that year migratory joint pains developed which affected both ankles, knees, left foot and left big toe. In October 1945 while riding horseback he experienced sudden severe pain in the chest associated with difficulty in breathing. He was brought to the Northern Duchess County Hospital, New York, where a diagnosis of acute coronary disease was made. The electrocardiogram showed

From the Medical Services of the Mount Sinai Hospital, New York.
Read before the American Academy of Allergy, St. Louis, Dec. 16, 1947.

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T_2 to be diphasic and T_3 inverted. This was interpreted as due to some localized damage in the left ventricle. He was transferred to the Veterans' Hospital in Saratoga, N. Y., from which he was discharged in January 1946 with a rating of 100 per cent disability. Throughout that year he suffered with periodic bouts of arthritis. Just before his admission to Mount Sinai Hospital in January 1947, he experienced pains and swelling of the great toe suggestive of gout. He was confined to bed for twelve days and was discharged improved on February 12, only to be readmitted on Feb. 24, 1947 because acute pains and swelling had developed in the right knee. At this time it was found that he also had involvement of the right great toe and medial aspect of the right ankle. The rest of the physical examination was negative. Laboratory studies showed 13,550 white blood cells, 37 per cent segmented polymorphonuclear cells, 50 per cent lymphocytes, 5 per cent mononuclear cells, 1 per cent basophil cells and 7 per cent eosinophils. The blood uric acid on Feb. 25, 1947 was 10.0 mg. per hundred cubic centimeters, on February 27, 7.2 mg., and on February 28, 6.8 mg. per hundred cubic centimeters. The blood cholesterol was 239 mg. per hundred cubic centimeters. Blood urea nitrogen was 8 mg. and creatinin was 1.3 mg. per hundred cubic centimeters. The electrocardiogram was normal.

The patient was given 1/50 grain (1.2 mg.) of colchicine every two hours for three doses, and on the following morning the joint pains subsided to a considerable extent. After a few days of hospitalization there was gradual improvement, and he was discharged with the diagnosis of gout.

In view of the fact that the most severe attacks occurred characteristically during the spring and fall, it was thought that perhaps the pollen prevalent during that period might be responsible for his symptoms rather than excess of food and drink traditionally considered as responsible factors. Despite a negative personal and family history for allergic diseases the patient was studied for the presence of hypersensitiveness. Tests disclosed positive reactions to a number of foods and inhalants, among which were wheat, timothy and ragweed pollen. It was felt that if sensitivity to pollen or wheat played a role in the arthritic attacks, then direct exposure to these substances should evoke an attack of arthritis in a patient whose shock organ was confined to the joints, just as similar contact would elicit hay fever or asthma in a person whose shock tissue was the respiratory tract. With the consent of the patient, it was decided to give him injections of the pollens in question before putting him on any diet excluding the reacting foods.

On March 21, 1947, while he was free of symptoms, his blood was examined for uric acid and found to contain 4.2 mg. per hundred cubic centimeters. On March 24, 1,000 units (protein nitrogen units, i. e., 1 unit is 0.01 mg. of phosphotungstic acid precipitable nitrogen) of timothy were introduced parenterally. At about 2 a. m. in the morning of March 25 he was aroused with severe pain in the left ankle which increased progressively in severity, followed by considerable swelling, tenderness and heat. There were also swelling and itching in the arm at the site of the injection of the pollen. The blood uric acid rose to 9.9 mg. per hundred cubic centimeters. He took four 1/50 grain tablets of colchicine, and the swelling subsided within twenty-four hours, only to flare up again on March 28. He repeated the colchicine, and again the swelling receded. He became completely well on March 30, 1947.

The effect of the injected timothy raised the question whether the ingestion of wheat, which is botanically related to timothy and to which he showed a positive skin reaction, had anything to do with the elicitation of the joint symptoms. He was therefore advised to eliminate wheat products. This he did, and he felt perfectly well until April 9, when he ate some bread and cake. A swelling of the right knee developed. The attack, however, was relatively mild and disappeared in twenty-four hours. At this time the blood uric acid was 9.2 mg. per hundred cubic centimeters.

On April 12 he was given an injection of 0.2 cc. of buffered sodium chloride solution used in extracting the pollen as a control, with no ill effects. This procedure was repeated April 14 with equally negative results.

On April 16 while on a wheatless diet he was given 1,750 units of timothy pollen, subcutaneously. This was followed twenty-four hours later with swelling and itching of the arm at the site of injection but without any arthritic manifestation. The uric acid was 7.7 mg. per hundred cubic centimeters. On April 21 he received 1,500 units of ragweed pollen. The arm at the site of injection became swollen, but again no gouty attack followed.

On April 23 he felt well and was told to resume eating wheat. Twenty-four hours later pains developed in the instep of the left foot. The dorsum was swollen and hot and veins distended. The blood uric acid was 7.8 mg. per hundred cubic centimeters. Application of heat and elevation of the foot relieved him. He took colchicine, and the pain and swelling subsided completely on April 26, 1947. When seen on April 28 he was free of symptoms, although he continued to eat wheat. This could be explained on the basis of temporary desensitization as a result of the recent joint attack. While in this asymptomatic state he received 3,000 units of timothy pollen subcutaneously. Eight hours later, at 2 a. m. on April 29, he was aroused with a severe attack of pain involving the upper and outer area of the right foot. The pain was so excruciating that he was unable to move. He also experienced nausea and diarrhea and could not eat. The inoculated site on the arm was markedly swollen and hot. Because of the diarrhea he was afraid to take colchicine and instead was given camphorated opium tincture with relief. On April 30 the pain and swelling gradually shifted to the right ankle and on May 1 it involved the right great toe, preventing him from walking. The skin over the great toe presented a bluish discoloration. The blood uric acid was 6.4 mg. per hundred cubic centimeters. These symptoms persisted with varying intensity until May 7, when he began to feel better; on May 9 he felt perfectly well again. He automatically had stopped eating wheat at the inception of this attack.

On May 12, after a period of three days of well-being, while still on a wheatless diet he was again given an injection of 2,000 units of ragweed. The following day there was a definite local swelling in the arm but no sign of arthritis. On May 16 he was told to eat wheat again. This time six days elapsed before a moderate swelling of the right knee developed. Such a sequence of events is frequently seen in allergic patients who, after abstaining from an offending food for a period of time, require more prolonged contact with the incriminating allergen before having symptoms again. On May 23, while still eating wheat, he was given 2,000 units of ragweed pollen. Within eight hours the pain and swelling in the right knee markedly increased. He was unable to move it more than 1 inch. After he had taken four doses of colchicine the swelling of the knee subsided, but on May 25 it shifted to the right foot and right elbow. His temperature rose to 102 F. and remained at that level until the next day, when it dropped to 100 F.

The blood sedimentation rate was 42 mm. in one hour (Westergren method). The blood examination showed 11,850 white blood cells, the differential count of which was as follows:

	Percentage
Nonsegmented polymorphonuclear cells	5
Segmented polymorphonuclear cells	50
Eosinophilic polymorphonuclear cells	4
Lymphocytes	37
Monocytes	4

The temperature fell gradually, and on May 28 the inflammatory signs in the ankle and the knee disappeared, but the right elbow remained swollen, and involvement of the left knee followed. Although colchicine was administered again it was ineffective. He was therefore given a subcutaneous injection of 0.5 cc. of epinephrine in the region of the swollen knee. This immediately relieved the throbbing pain and helped to reduce the swelling. Injections of epinephrine were thereafter repeated until all symptoms finally subsided, on June 6, 1947.

Since he had stopped eating wheat after the onset of this severe arthritic attack and at this point had been on a wheat-free diet for three weeks it was decided, despite the presence

of timothy pollen in the air, to attempt to desensitize him to the latter as well as to ragweed pollen, and at the same time to study the effect of the simultaneous injections of these two pollen extracts. On June 13, two days after he had received 100 units of timothy and 100 units of ragweed pollens, severe swelling of the left ankle developed, followed on June 14 by that of the left great toe. The blood uric acid at that time was 5.7 mg. per hundred cubic centimeters. Epinephrine was again used effectively with relief from pain. The involvement in the toe continued for the next two weeks, and on June 27 the right elbow became slightly tender and swollen. Complete remission of this attack took place on June 30.

After a symptomless interval of about a week he was again given 100 units of timothy and 100 units of ragweed (July 7). This was followed the next day by injection of 200 units of ragweed. Two days later severe swelling of the right knee developed, followed by marked suppression of urine. A specimen of the latter showed albumin (3 plus). The oliguria continued for three days and gradually cleared, whereas the involvement of the knee persisted till July 25. Throughout this period the joint pains were controlled with epinephrine in oil. Examination of the blood uric acid on August 11, when he was perfectly well, showed 8.1 mg. per hundred cubic centimeters. The urine was normal.

He felt well till September 2, when he experienced slight pain in the right ankle, which disappeared spontaneously after several days, although he had stopped eating wheat. This attack was regarded as due to heavy ragweed pollination. The examination for uric acid on September 3 showed 13 mg. per hundred cubic centimeters. Since this episode he has been perfectly well on a wheatless diet to the present writing (January 1948). Examination of his blood on December 5, 1947 showed 5.9 mg. of uric acid per hundred cubic centimeters.

Summary.—A man aged 25 was admitted to the hospital because of an attack of arthritis involving the great toe. He gave a history of periodic bouts of similar joint involvement in the past and an attack of angina pectoris in October 1945. Examination suggested the diagnosis of gout. This was supported by the presence of hyperuricemia. The blood count revealed eosinophilia (7 per cent). Because of the latter and the fact that the most severe attacks occurred during the early summer and fall the possibility of hypersensitiveness to the prevailing pollens was suspected, despite absence of a personal and family history of allergy. Investigation disclosed positive reactions to foods and inhalants, of which wheat, coffee, timothy and ragweed pollen were found to be most significant. Ingestion of wheat induced a moderate attack of monoarticular gout with rise in uric acid. Ingestion of wheat plus the subcutaneous injection of timothy or ragweed pollen extract up to 2,000 or more units resulted in severe polyarticular gout involving the great toe and accompanied by elevation of uric acid. Combined injection of 100 units of ragweed and 100 units of timothy pollen during the grass pollinating season induced similar arthritis seizures and on one occasion was followed by marked suppression of renal function and albuminuria lasting three days. Separate inoculation of either ragweed pollen or timothy pollen, when the patient was on a wheat-free diet, resulted merely in swelling at the site of injection and no other manifestations. With the termination of the pollen season and avoidance of wheat the patient became free of symptoms.

CASE 2.—J. R., aged 45, was first seen in May 1944. He had influenza in 1918 which was followed by otitis media and impairment of hearing. The latter became worse in 1928 as a result of an infection of the upper respiratory tract which also left him with an involvement of the left antrum. As a sequence to the antral infection pain developed in the great toe which was diagnosed as gout. This attack was succeeded by others which were so severe as to disable him for as long as ten days at a time. The arthritic manifestations were preceded by stuffiness of the nose and a postnasal discharge. In November 1940 he suffered with polyarticular gout involving the big toes of both feet, the wrists and the knees which confined him to bed till February 1941. He was treated with colchicine and neocinchophen with good results. After his acute attacks subsided he went to the New York Hospital for observation. Here it was discovered that he had chronic hypertrophic rhinitis, chronic nasopharyngitis, pansinusitis and pronounced mixed deafness. The heart, lungs and abdomen were normal, and roentgen visualization of the gallbladder proved negative. The antrums were washed and the left one was found to contain purulent secretion. Inasmuch as the involvement of this maxillary sinus was found to be associated with a diseased left upper molar, the latter was extracted. An antrotomy was also performed (June 2, 1941) and several large polyps were removed from the interior of the antrum.

Roentgen examination of the left foot at this time disclosed several small areas of decreased density at the proximal end of the first phalanx along the mesial border of the left foot. This was diagnosed as gout. Laboratory studies showed blood uric acid levels of 6.8 mg. and 5.4 mg. per hundred cubic centimeters respectively. The sedimentation rate was 61 mm. On discharge from the New York Hospital he was advised to have the sinuses treated and to stay on a low fat and low purine diet.

From 1942 to 1944 the infected antrum was washed from time to time by his rhinologist, who found that any exacerbation of the chronic sinusitis was followed by a severe attack of gout.

About the beginning of May 1944, after one of his acute sinus attacks, the patient experienced severe pain in the right wrist. In view of the fact that in that season of the year relatively little infection was present the question arose whether exacerbation of the sinus disease, which was responsible for similar previous gouty attack, was due to endogenous or some exogenous factors such as pollen sensitization. Investigation for the presence of hypersensitiveness was therefore undertaken despite a negative personal and family history of allergy.

Skin tests revealed that the patient reacted to various inhalants such as tree pollens, timothy and ragweed, as well as foods. These findings suggested that the sinusitis as well as the sneezing and wheezing together with the "sour stomach" which frequently preceded and aggravated the arthritis attacks during the summer months might be explained on a basis of sensitization to the substances causing positive reactions.

On June 10, 1944 he was placed on a diet which excluded the suspected allergenic foods and immunization was instituted against ragweed pollen. He was also given injections of a vaccine of Staphylococcus aureus organisms cultured from his sinuses.

He felt perfectly comfortable until September 28, when mild asthmatic seizures developed, which disappeared on Nov. 11, 1944. Thereafter he was well until Jan. 8, 1945, when after an infection of the upper respiratory tract he had a moderate attack of arthritis involving the right knee, which cleared up on Jan. 12, 1945.

Immunization against timothy and plantain was begun in February 1945. This was continued uneventfully until March 12, when after an injection of 1,200 units of timothy pollen, he experienced cough and shortness of breath together with pain in the right knee, which improved after two days. The injections of timothy pollen were therefore resumed at a lower level of dosage, and on March 29 immunization against tree pollens was started at the same time. After receiving 200 units of tree pollen extract on April 23, 1945 the patient experienced pain in the right foot, which became so severe and persistent that it was decided to discontinue the injections of tree pollen extract. This was followed by notable improvement, and he remained well till May 7, 1945, when, after an inoculation of

16,000 units of timothy extract, acute bursitis of the right elbow suddenly developed, which lasted for one week. This was interpreted as a local specific reaction to an overdose of timothy pollen. Injections of the latter were therefore discontinued. On June 11 desensitization against ragweed pollen was begun. He was asymptomatic until Aug. 23, 1945, when despite the fact that he had received 4,000 units of ragweed pollen he began to sneeze and experienced stuffiness of the nose, cough and pain in the right great toe. This continued untll September 4, when both the nasal and the toe symptoms disappeared.

On October 18 he went to the country for a week end and went off his diet, after which there developed an attack of arthritis affecting the right wrist, lasting for three days. He remained well until Dec. 1, 1945 when after the ingestion of oysters he experienced severe pain in the right foot which confined him to bed for two days. On December 23 he contracted a sore throat. Six days later he experienced swelling of the right hand, affecting the fourth metacarpal joint. This slowly improved.

In view of the fact that during the spring of 1945 injections with combined tree and timothy pollen had to be discontinued because of the appearance of joint symptoms, immunization against tree pollens was begun early in November 1945 and continued through February 1946. On February 12 after a dose of 1,500 units of mixed tree pollens, a moderate attack of asthma developed. This amount was reduced and subsequently increased without any mishap until March 7, when he received 2,500 units of mixed tree pollen extract, consisting of ash, birch, poplar and oak tree pollens together with 100 units of timothy. This was again followed by severe involvement of the right knee. Timothy pollen inoculations were therefore immediately stopped. On March 25 when he reached the dose of 3,000 units of mixed trees the involvement of the right knee, which had been subsiding, flared up again; it persisted till April 30, when it was followed by involvement of the left ankle, which lasted till June 5, 1946.

Because of the experience with the timothy and tree pollen inoculations he decided against further treatment with ragweed extract. As a result symptoms of hay fever developed about Oct. 2, 1946, followed by an attack of podagra affecting the right great toe.

He was not seen again until September 1947 when he gave the following history of the interval. In March 16, 1947 pain in the right elbow associated with bursitis developed. This was followed by swelling of the right hand, which disappeared on April 4. The bursitis persisted until June 4, 1947, when it cleared up completely. During May and June he was unable to walk because of pain in both feet. About July 1, swelling of the left index finger developed and one week later bursitis involving the left elbow. The pain in the left finger subsided on July 8, only to be succeeded by migrating pains affecting the right elbow and both knees; this disappeared about July 25. Throughout this entire period he suffered with asthma, which was relieved by the use of a proprietary preparation containing ephedrine, phenobarbital and aminophylline. He was relatively well till the middle of August, when he experienced symptoms of hay fever, difficulty in breathing, sour stomach and an exacerbation of the bursitis of the left elbow as well as pain in the right great toe. He attributed the sour stomach to coffee and beef, to which he showed positive skin reactions.

Summary.—A man aged 45 presented himself because of recurrent attacks of gouty arthritis including podagra following exacerbations of chronic sinus disease which had resulted from previous infections of the respiratory tract. A left-sided antrotomy with improved drainage helped to diminish the frequency of the gouty episodes. Nevertheless he still suffered severely during the spring and fall, when the attacks were preceded by stuffiness of the nose and wheezing respiration. Investigation disclosed sensitivity to tree, timothy and ragweed pollen as well as various foods. Injection of an overdose of tree pollen extract in the process of immunization was followed by acute gouty attacks involving the knee, the ankle or the elbow as well as the great toe. Similar arthritic reactions accompanied by sneezing and/or asthmatic episodes followed the administration of an overdose of timothy extract or combined injections of tree and timothy pollen extracts.

Case 3.—E. W., aged 41, a trained nurse, was admitted to the allergy clinic because of recurrent sneezing which was especially pronounced during July, August and September. The family history revealed that her maternal grandmother had asthma and her paternal grandmother, uncles and father had had arthritis.

As a child she suffered with so-called rheumatic joints and recurrent colds accompanied by sinusitis. When she entered training in 1929 her sinuses were examined and both antrums were found infected. Washings yielded mucopurulent material which on culture showed Staph. aureus, diphtheroids and Staphylococcus albus. In view of the fact that the tonsils were regarded as a source of infection, tonsillectomy was performed in October 1929. On one occasion after receiving a prophylactic injection of typhoid vaccine she experienced stiffness in all her joints. This receded with the exception of the pain in the right wrist, which bothered her throughout her training.

An attack of grip in 1934 was followed by severe coughing spells. Roentgen examination of the lungs disclosed an infiltration in both apices which was diagnosed as tuberculosis. The sputum, however, was never positive for tubercle bacilli. She left training and went to a sanatorium in Saranac, N. Y., where she remained for two years, returning in 1936. Early in 1941 she had a cholecystectomy for lithiasis followed by a pulmonary embolism and pleural effusion. After a stormy convalescence she improved except for the persistence of her sinusitis and pains in the right hand and knee. Because of seasonal recurrences of the sinusitis she suspected that it might be due to allergy and submitted herself for study. On investigation she was found to be sensitive to dust, trees, timothy and ragweed pollen as well as to foods, the most important of which proved to be milk and coffee.

In July 1941 she experienced pain in the great toe of the right foot. This recurred during the hot and humid days of July and August. Inasmuch as the symptoms were suggestive of gout her blood was investigated for hyperuricemia. The specimen examined July 8, 1941 showed a blood uric acid level of 5.8 mg. per hundred cubic centimeters. After another attack of polyarthritis during the ragweed season which implicated right wrist, knee and right great toe, the blood uric acid was 7.2 mg. per hundred cubic centimeters (Aug. 13, 1944).

Immunization was undertaken against dust, timothy and ragweed pollen. She was also given an injection of an autogenous vaccine made from the organisms recovered from the sinus washings. While under treatment she manifested extreme sensitiveness to dust and ragweed pollen. On several occasions, severe constitutional reactions developed after injections of 0.1 cc. of 1:1,000 solution of dust extract. The ragweed pollen extract could not be increased beyond 20 units. Despite the small immunizing pollen doses she became relatively free of the nasal symptoms as well as the joint pains. On April 17, 1947 she was revaccinated with smallpox vaccine. This was followed by an attack of muscle and joint pains, which greatly debilitated her. To regain her vigor she decided to take a glass of milk every afternoon, although she knew that she was sensitive to it and had refrained from drinking it for fifteen years. After partaking of one glass of milk every afternoon for four days she experienced severe pains in the right wrist and right knee as well as in all her neck muscles, which confined her to bed for a week. After recovery she decided to discontinue all immunization to pollen and dust because she was never certain when she would get a constitutional reaction. She has, however, continued to exclude the allergenic foods and has been free of arthritic attacks.

Summary.—A nurse, aged 41, with a family history of arthritis and asthma, presented symptoms of hay fever, vasomotor rhinitis and chronic sinusitis associ-

ated with bouts of gouty arthritis with hyperuricemia. These appeared (1) during the timothy and ragweed season, (2) after smallpox vaccination and (3) after drinking milk. Improvement followed the elimination of foods to which she was sensitive and immunization to specific pollens and dust.

COMMENT

In the foregoing cases it was possible to precipitate acute attacks of gouty arthritis and hyperuricemia by specific allergenic excitation. Ingestion of various amounts of purine-and-fat-containing foods proved to be harmless as long as the sensitizing substances were avoided. This suggested that the persons under investigation were allergic and that their shock tissues were located in the articular structures. Evidence to this effect was obtained in the personal and family history of allergy in cases 2 and 3. In case 1, despite the absence of such a history the possibility that allergy might be a factor was considered because the most severe attacks occurred during the spring and late summer coincidental with the pollen season, and on one occasion were accompanied by eosinophilia. Support for this hypothesis was found not only in the demonstration of positive skin reactions to pollens and foods, such as wheat, but also in the precipitation of acute gouty paroxysms by specific contact with these exciting agents. Thus within twenty-four to thirty-six hours after eating wheat this patient invariably experienced a mild monoarticular involvement. In such circumstances it was always possible to induce severe polyarticular gout, including podagra and hyperuricemia, by the injection of either timothy or ragweed pollen solutions in two or three thousand unit doses, whereas when he was on a wheatless diet injections of timothy or ragweed pollen extract were without any effect. However, the combined administration of ragweed and timothy pollen extracts, in doses as little as 100 units each, during the timothy pollen season resulted in polyarticular manifestations of gout on one occasion, and on another besides the arthritis a suppression of urine and albuminuria which lasted three days. The latter may have been due to some vascular reaction in the kidneys in response to pollen sensitization analogous to the periarticular edema and venous dilatation in the acutely gouty joint. It is possible also that the anginal seizure which this patient experienced in October 1945 associated with inversion of T_2 and T_3 in the electrocardiogram likewise represented a vascular response to some allergenic stimulation. In other words, it is not improbable that in these patients the articular, renal and cardiac manifestations, just as the gouty arthritis, could be looked on as the effects of vascular reactions in different shock tissues induced by sensitization by a variety of exciting agents. It follows, therefore, that no involvement of these extra-articular tissues need be expected unless they happen to be shock organs.

That the gouty attacks may be induced not only by pollen and foods but also by bacterial sensitization is illustrated in cases 2 and 3 of this series. In both of these patients arthritic manifestations followed exacerbations of chronic sinusitis as a sequence to either acute infection of the respiratory tract or tree and grass pollen sensitization during the spring and summer. In case 2 the gouty attacks were frequently preceded by nasal stuffiness or wheezing respiration. Injections of an overdose of tree or grass pollen extracts evoked joint symptoms as well as sneezing and asthmatic breathing. The precipitation of reactions in the respiratory tract concurrently with those in the joints by the same allergenic excitants is strongly suggestive that the responses in these various shock organs were influenced by a similar mechanism. The lack of any evidence of respiratory allergy in case 1 may simply be due to the fact that this patient's respiratory tract was not a shock tissue. Nevertheless, in this as in the other cases, the arthritis seemed to be due to sensitization to pollens and foods and was controlled by local subcutaneous injection of epinephrine almost as well as with colchicine.

One of the most significant facts made apparent by this study is the severity of reactions and number of shock organs which participated after the simultaneous exposure to several allergens. This synergism was illustrated in case 1, when both polyarthritis and renal symptoms accompanied by hyperuricemia developed, after injection of combined timothy and ragweed pollen, and cases 2 and 3 when nasal and respiratory symptoms such as wheezing appeared together with joint symptoms after the ingestion of specific foods or injections of tree and timothy pollen. This is comparable to the synergistic effects noted as a result of multiple sensitization in uncomplicated allergic states such as asthma or vasomotor rhinitis. Other similarities between the latter and gout are to be found (1) in the presence of uric acid retention in certain asthmatic persons as reported by K. Hajos and Kurti, Kleyn and Storm van Leuuwen, which, however, needs further verification and elucidation; (2) in the influence which nonspecific endogenous as well as exogenous exciting factors such as psychic stress, surgical operations and temperature changes may play in precipitating these different clinical syndromes. Any one of these nonspecific excitants may either accentuate the asthmatic or gouty attacks originally induced by allergy to certain food or inhalants or condition the respective shock tissues to subsequent specific sensitization.

If it may be assumed that the fundamental reaction in the joints of the patients under investigation was due to hypersensitiveness, it may be inferred that any subsequent deposition of urates in the affected articular and other structures such as the kidney would be probably secondary. This concept finds support in the observations of Weil [6] and his collaborators, who observed fibrinoid degeneration of the collagen, surrounded by fibroblasts, histiocytes, plasma cells and granulocytes in the histologic sections of a gouty joint, regarded by them as due to allergy. The classical picture of chronic tophaceous gout in patients like those described can therefore be looked on as the result of irreversible inflammatory changes in the joints, originally of allergic origin, which favor the precipitation and deposition of urates. This sequence of events may be compared to bronchial asthma, in which recurrent attacks may lead to irreversible changes characterized by pulmonary fibrosis and emphysema.

Uric acid itself is considered by some investigators of this disease as a dead product in the attack. Others, such as Chini, look on uric acid as an activating agent concerned with fixing of the allergens in certain pre-

6. Lettule, M., and Weil, M. P.: La goutte articulaire, les lesions primordiales du cartilage, Presse méd. **32**: 577, 1924.

disposed areas because of its capacity to produce increased tissue permeability. According to this investigator uric acid and the allergic factors compliment each other and must be considered equally responsible in the gouty attacks. Such an interpretation, however, seems to be contradicted by the fact that despite the presence of a high level of uric acid in the blood, the gouty person, on the one hand, may be free of any symptoms, and, on the other, may have attacks when on a so-called normal or low purine diet with normal blood uric acid. This would suggest, in the absence of any evidence that uric acid has any allergenic properties, that the role of uric acid is passive rather than active. Emphasis should therefore be directed to the specific and nonspecific excitants of either exogenous or endogenous origin, which may play the active role in the development of the gouty symptoms.

Inasmuch as a disturbed purine metabolism, whether on a constitutional or other as yet unexplained basis, usually accompanies this disease, the gouty person of the type referred to may be regarded as a potentially allergic person whose joints constitute the major shock tissue with a coincidental uric acid diathesis. The crippling arthritis of the tophaceous stage in such a patient may represent the sequela of undetected repeated allergenic insults. The ensuing local complications may in turn be attributed to the mechanical and otherwise irritating effects of the uratic deposits.

SUMMARY

It is generally recognized that attacks of gout in predisposed persons may be precipitated by a large number of factors. These may be foods, certain alcoholic beverages, excessive ingestion of fats, surgical operations, drugs such as mersalyl, ergotamine tartrate given for migraine, insulin, liver injections, blood transfusions, disturbance in the electrolyte and water balance, trauma and exposure to dampness and cold. The mode of action of each of these exciting agents varies and is not always clear. It is therefore desirable whenever possible to determine the underlying mechanism involved.

In a study of 3 patients, 2 men and 1 woman, it was possible to demonstrate that allergy to specific foods and pollens as well as to infection played a conspicuous role in the development of the gouty manifestations associated with hyperuricemia. Acute attacks of gout could be induced by the deliberate subcutaneous injection of several pollen extracts at the same time or by the synergistic action of allergenic foods and pollens. In addition to the joint symptoms reactions in the kidneys characterized by temporary urinary suppression with albuminuria were observed in 1 patient as a consequence of pollen inoculation. In another instance the administration of an overdose of pollen was followed by simultaneous response in the nasal and pulmonary as well as in the articular structures. This suggested that the swelling of the gouty arthritis in these patients and the renal and respiratory manifestations were the result of vascular tissue reactions mediated by a similar allergic mechanism. The role of uric acid in the gouty attacks is discussed. The symptomatic treatment consisted of administration of colchicine and local injection of epinephrine. The causal therapy included the elimination of offending foods and pollen immunization.

TOXIC REACTIONS DURING STREPTOMYCIN-SULFADIAZINE THERAPY OF BRUCELLOSIS

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The toxic effect of streptomycin on the eighth cranial nerve has been well known since early in its clinical use. Published opinions indicate that the toxicity of streptomycin to the central nervous system is confined almost entirely to this nerve, predominately to its vestibular branch.[1] Nevertheless, a few isolated instances of other neurologic involvement have been reported. Hunnicutt and co-workers[2] have published a fatal case of toxic encephalopathy apparently caused by streptomycin. Postmortem examination revealed focal areas of rarefaction and necrosis throughout the brain. Finland and co-workers[3] reported a patient in whom severe vertigo, syncope and right-sided clonic convulsive seizures occurred on two occasions during the intravenous injection of streptomycin. In patients with meningitis receiving streptomycin intrathecally, neurologic disorders arising during the course of treatment ordinarily are attributed to the disease, but in some instances it is not unreasonable to suspect that the symptoms may be a toxic manifestation of the drug. For example, in the report by Weinstein and Perrin[4] of 3 cases of meningitis due to Pseudomonas pyocyanea treated with streptomycin and sulfadiazine, circumstances in their second case warrant a strong suspicion that the neurologic complications were due to the drug rather than to the disease. In a relapse of the meningitis occurring thirty-two days after initial treatment, streptomycin and sulfadiazine were again administered.

Twenty-three days after resumption of intrathecal treatment, a series of generalized convulsions, lasting about an hour occurred, and was followed by stupor. A lumbar puncture revealed 550 red cells and 550 white blood cells per cu. mm. (91 per cent lymphocytes). There were no localizing neurological signs or paralysis. Within 24 hours consciousness returned but the patient was euphoric and had some difficulty in recognizing people. Intrathecal streptomycin was discontinued immediately after the convulsive episode.[4]

The relatively low spinal fluid leukocyte count is in contrast to counts of 6,000 to 14,000 during the early days of the relapse. This, together with the absence of a rise in fever, further leads one to suspect that this complication may have been due to the streptomycin. It may be significant that this patient was receiving sulfadiazine simultaneously.

Paresthesias of the face, particularly of the circumoral region, the tongue and even of the extremities are not infrequent.[5] Although this is well known, its possible significance as evidence of widespread

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2. Hunnicutt, T.; Graf, W. J.; Hamburger, M.; Ferris, E. B., and Scheinker, I. M.: Fatal Toxic Encephalopathy Apparently Caused by Streptomycin, J. A. M. A. **137**: 599-602 (June 12) 1948.
3. Finland, M.; Murray, R.; Harris, H. W.; Kilham, L., and Meads, M.: Development of Streptomycin Resistance During Treatment, J. A. M. A. **132**: 16-21 (Sept. 7) 1946.
4. Weinstein, L., and Perrin, T. S.: Meningitis Due to Pseudomonas Pyocyanea: A Report of Three Cases Treated Successfully with Streptomycin and Sulfadiazine, Ann. Int. Med. **29**: 103-117 (July) 1948.
5. Streptomycin in the Treatment of Infections, Report of the Committee on Chemotherapeutics and Other Agents, National Research Council, J. A. M. A. **132**: 70 (Sept. 14) 1946.

toxicity to the central nervous system has been largely ignored.

During the course of treatment of brucellosis with the combined use of streptomycin and sulfadiazine, we have encountered toxic reactions of the nervous system which seemed to be out of proportion to the small doses of streptomycin and to involve more widespread areas of the brain than has generally been recognized. In 2 cases severe encephalopathies were encountered within a few hours after the initial dose of streptomycin.

REPORT OF CASES

CASE 1.—Miss I. K., a 24 year old woman, has been observed at the University of Chicago Clinics since Sept. 1, 1947. (This patient was reported by Howe and his co-workers,[6] case 3, and also by Apter, Halstead, Eisele and McCullough.[7]) She acquired brucellosis (Brucella suis septicemia) in March 1945 while in the Navy working in a brucella research laboratory. The initial illness was severe and prolonged and included episodes of intense headache and stupor, suggestive in retrospect of an encephalopathic process. In the succeeding two years there were at least ten febrile recurrences. She has continued to be totally disabled and to complain of persistent fatigue, recurrent headaches, multiple joint pains, insomnia, mental sluggishness and remarkably poor memory. Laboratory and clinical evidence of organic brain damage in this patient has been presented elsewhere.[7]

In November 1947 a course of simultaneously administered streptomycin and sulfadiazine was instituted. Twenty-four hours after sulfadiazine therapy (6 Gm. per day) was begun, streptomycin therapy was started. On the first day, 3 Gm. of streptomycin were given in divided doses, on the second day 4 Gm. and then, because of toxic signs, the dose was reduced, and for the next eight days 2 Gm. were given daily. The sulfadiazine therapy was continued for an additional eleven days, with blood levels approximating 10 mg. per hundred cubic centimeters. One week after streptomycin therapy was stopped, additional 4 Gm. were given during a twenty-four hour period for the purpose of verifying and further evaluating the toxic reaction.

During the second day of streptomycin therapy, the patient presented alarming symptoms of central nervous system disturbance, consisting of severe headache, semistupor, mild disorientation, bilateral ptosis of the eyelids, eye muscle weakness with difficulty in convergence and diplopia on lateral gaze, blurring of vision, paresthesias and pronounced hypalgesia to pinprick on the entire face and forehead, most pronounced in the perioral region, tremulousness of the lips bordering on fibrillatory movements, tinnitus and paresthesias in the extremities. A lumbar puncture was done; the dynamics were normal, the cell count was 4 lymphocytes per cubic millimeter, and the results of chemical, colloidal gold and Kahn tests were normal. We questioned seriously whether this treatment should be abandoned, but in view of the patient's long incapacitating illness and a reasonable doubt that this reaction could be due to the treatment, the dose of streptomycin was reduced to 2 Gm. per day and continued for eight more days. On this reduced dose the symptoms and signs diminished but did not disappear.

One week after streptomycin therapy was stopped, but while sulfadiazine was still being administered, streptomycin was again given for a twenty-four hour period (0.5 Gm. every three hours, total dose 4 Gm.). After the second dose, the former symptoms and signs reappeared, and by the end of the twenty-four hour period the previously described clinical picture was again reproduced in all essential details. The diplopia and the perioral hypalgesia to deep pinprick persisted for two weeks, eventually disappearing.

CASE 2.—Mrs. C. B., a 50 year old farmer's wife, has been examined at frequent intervals at the University of Chicago Clinics since November 1944. (This patient was also reported by Apter, Halstead, Eisele, and McCullough.[7]) The present illness began in 1938 and was characterized by an acute onset with temperature ranging as high as 104 F., severe headache, muscular pains and loss of weight. Although bacteriologic proof has not been obtained in this patient since she was first seen by us seven years after the onset, the diagnosis of chronic brucellosis rests soundly on the following data: an adequate exposure history consisting of ingestion of raw milk from a herd subsequently shown to be heavily infected with Bang's disease, a rising agglutinin titer from completely negative at the onset of the illness to a titer of 1:320 several months later (both tests were performed in the Illinois State Laboratory of Public Health) and a chronic febrile incapacitating illness in a previously well patient. Following her acute illness, her complaints have been many, persistent and disabling and included headache, weakness, exhaustion, insomnia and radicular pains. Recurrent episodes of low grade fever occurred. For the past seven years she has recognized increasing difficulties in reading, writing, calculating and remembering. Sample tests for immediate recall, memory and calculation yielded retarded and impaired responses. The significant neurologic observations consisted of decided concentric constriction of the visual fields; unequal pupils; minimal and sluggish reaction of the right pupil to light; tremulousness of the lips during mimetic expressions; bone conduction greater than air conduction on the left; generalized muscular weakness and hypotonia; bilateral symmetric atrophy of distal portions of all extremities most pronounced in the intrinsic musculature of the hands and feet; hyperactive knee jerks; the right ankle jerk absent and the left barely elicited; absence of vibratory sensation over terminal phalanges, ulnas, radiuses, tibias and fibulas; impairment of position sense in all extremities; pain, thermal and light touch sensations diminished on the face, thorax and abdomen and greatly impaired distal to the elbows and knees; awkwardness in the performance of coordinative functions, and hesitant and mildly ataxic gait. Spinal fluid studies on four occasions revealed no biologic alterations. Electroencephalographic tracings taken a year apart were consistent with a diagnosis of generalized encephalopathy. The Halstead Impairment Index[8] of biologic intelligence was 0.8.

In February 1948 she was given the combined streptomycin and sulfadiazine treatment. Sulfadiazine was started with a daily dose of 6 Gm. The next day, streptomycin therapy was started with a dosage of 2 Gm. per day and continued for fourteen days (total dose, 28 Gm.). Sulfadiazine therapy was continued for an additional four weeks, and blood levels were maintained at approximately 10 mg. per hundred cubic centimeters.

On the second day of streptomycin treatment, the patient experienced a severe generalized headache, dizziness, blurring of vision, diplopia on lateral gaze, ptosis of the eyelids and complete inability to roll the eyes upward. She complained of stiffness and soreness of the neck, and a moderate degree of nuchal rigidity was present. A sharp but brief rise in temperature occurred during an otherwise afebrile period. These signs and symptoms appeared after 2 Gm. of streptomycin were administered and became maximal after 4 Gm. They persisted but did not progress during the remainder of the course of streptomycin and thereafter gradually disappeared. Spinal fluid examination on the second day showed normal dynamics, an absence of cells and normal serologic and chemical reactions.

Toward the end of the course of streptomycin tinnitus and vertigo developed. Repeated tests of labyrinthine function showed no abnormalities until the course was completed. Symptoms then became so severe that she was unable to walk without aid, and tests showed nonresponding labyrinths. This disability has persisted to the present time, five months later.

In addition to the foregoing 2 cases, an odd neurologic complication has been observed in another patient.

CASE 3.—Mrs. C. M., a 49 year old farmer's wife, has been followed intermittently at the University of Chicago Clinics since August 1946. Her complaints were many and varied. A prior diagnosis of brucellosis could not be confirmed, in part

6. Howe, C.; Miller, E. S.; Kelley, E. H.; Bookwalter, H. L., and Ellingson, H. V.: Acute Brucellosis Among Laboratory Workers, New England J. Med. **236**: 741-747 (May 15) 1947.

7. Apter, N. S.; Halstead, W. C.; Eisele, C. W., and McCullough, N. B.: Impaired Cerebral Functions in Chronic Brucellosis, Am. J. Psychiat. **105**: 361-366 (Nov.) 1948.

8. Halstead, W. C.: Brain and Intelligence, Chicago, University of Chicago Press, 1947.

because of previous vaccine therapy. The patient requested the combined streptomycin and sulfadiazine treatment. In keeping with our policy of reserving this treatment for the seriously ill patient, and also because of the dubious diagnosis, her request was refused. She then went elsewhere and obtained the treatment. In January 1948 a five day course of treatment consisting of a total dose of 7 Gm. of streptomycin (1.5 Gm. per day) and 20 Gm. of sulfadiazine was given in another hospital. (This information was furnished by the patient's physician.) On the fourth day of treatment persistent retention of urine developed, and the patient required daily catheterizations. This dysfunction has persisted to the present time, seven months later. Repeated urologic examination here, including cystoscopy, cystometric studies and bladder sensory examinations, have led to the diagnosis of a neurogenic bladder dysfunction. Neurologic examinations, spinal fluid studies, electroencephalograms, tests of visual fields and roentgenograms of the skull and spine yielded no other evidence of disease.

This unusual complication arising shortly after the start of combined streptomycin and sulfonamide therapy and unexplained after intensive investigation of other possible causes, although not necessarily due to the treatment, at least warrants speculation.

Circumoral paresthesia accompanied with objectively demonstrable hypalgesia has been a common occurrence in our patients receiving the combined streptomycin and sulfadiazine treatment. The symptoms and signs usually developed within a few days after treatment was started, even with the relatively small dose of 2 Gm. per day.

COMMENT

The fatal case of toxic encephalitis reported by Hunnicut and co-workers [2] demonstrates that widespread damage to the central nervous system may be produced by streptomycin. The cases cited here support this thesis. They serve to raise seriously the question of the significance of minor neurologic signs, the paresthesias, which commonly accompany streptomycin therapy. These minor clinical signs of toxicity have previously been largely disregarded. It should be remembered that the lack of definite neurologic signs does not exclude the possibility of insidious or latent damage to many areas of the brain. It is well known that serious neurologic disease may appear many years after the action of an inciting agent. For instance, postencephalitic Parkinsonism may appear long after the acute phase of the disease, and the acute encephalitis may in fact have been so mild as to have been unrecognized at the time. Damage to the so-called silent areas of the brain may escape recognition. These areas, although furnishing a paucity of signs, serve as the highest integrative centers of intelligence.

The usefulness of the combined streptomycin and sulfadiazine treatment in brucellosis was first reported independently by Pulaski and Amspacher [9] and by ourselves.[10] Although we were among the first to use and report this method, we have employed this treatment only in carefully selected cases, in part because of our early recognition of its inherent toxicity. We have recommended [11] that this treatment be reserved for the seriously ill patient.

In our experience with the combined streptomycin and sulfadiazine treatment, the toxic effects on the nervous system have been of such frequency and magnitude that we have seriously considered the likelihood that the combined use of the drugs increases the toxicity as well as the clinical effectiveness of streptomycin, or possibly the nature of the disease may increase the hazards. It should be remarked that our series contained several patients with preexistent central nervous system involvement, a complication which has long been recognized in brucellosis. Both of the severe reactions occurred in patients with long-standing brucellosis with this complication. Milder reactions, however, have occurred in patients without recognizable central nervous system disease.

In patients with a chronic granulomatous disease, the use of a specific treatment may evoke a Herxheimer type of reaction. Granulomatous lesions in brucellosis have been demonstrated to occur throughout the entire brain.[12] In our first 2 cases several factors suggest this as a plausible mechanism for the toxic reaction, namely, the explosive nature of the onset, the short interval between the initiation of treatment and the appearance of the reaction, the peak of the reaction appearing with small total doses of the drug, the prompt production of a clinical picture reminiscent of the symptoms of the initial illness and a sharp but brief rise in temperature during an afebrile period. On the other hand, the frequency of minor neurologic signs, evidencing a widespread toxic action on the central nervous system, makes one question whether these cases are merely exaggerated instances of toxicity in vulnerable subjects.

9. Pulaski, E. J., and Amspacher, W. H.: Streptomycin Therapy in Brucellosis, Bull. Army M. Dept. **7**: 221-225 (Feb.) 1947. Pulaski, E. J., and Amspacher, W. H.: Streptomycin Therapy for Certain Infections of Intestinal Origin, New England J. Med. **237**: 419-428 (Sept. 18) 1947.

10. Eisele, C. W., and McCullough, N. B.: Combined Streptomycin and Sulfadiazine Treatment in Brucellosis, J. A. M. A. **135**: 1053-1055 (Dec. 20) 1947.

11. Eisele, C. W., and McCullough, N. B.: The Treatment of Brucellosis, Illinois M. J., to be published.

12. Meerssmann, Dechaume and Pommé: Un cas de encéphalite aiguë postmélitococcique; étude anatomoclinique, Revue de microbiologie appliquee à l'agriculture et à l'industrie, 1936; cited by Roger, H., and Poursines, Y.: Les méningo-neurobrucelloses, Paris, Masson & Cie, 1938. Scheidegger, S., and Stern, K.: Encephalitis bei Bangscher Krankheit, Ztschr. f. d. ges. Neurol. u. Psychiat. **157**: 449-465, 1937. Kessler, M., and Müller, W.: Meningoencephalitis bei Morbus Bang, Arch. f. Psychiat. **109**: 347-362, 1939. Löffler, W.; Moeschlin, S., and Willa, A.: Klinik und Pathologie der Febris undulans Bang unter besanderer Berucksichtigung der spezifischen Kimplikationen, Ergebn. d. inn. Med. u. Kinderh. **63**: 714, 1943. Hansmann, G. H., and Schenken, J. R.: Melitensis Meningoencephalitis: Mycotic Aneurysm Due to Brucella Melitensis Var. Porcine, Am. J. Path. **8**: 435-444 (July) 1932.

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TREATMENT OF GLAUCOMA ASSOCIATED WITH IRIDOCYCLITIS

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The management of ocular hypertension associated with iridocyclitis constitutes one of the most difficult problems in ophthalmology. The accepted dogma is to consider the condition in all such cases as secondary glaucoma and to adopt a more or less standard formula for treatment. Yet, when confronted with a case of iridocyclitis in which ocular hypertension develops, the physician wonders whether to continue with a mydriatic, change to a miotic or resort to surgical treatment. On the other hand, there are instances in which fairly successful miotic treatment was discontinued in favor of treatment with mydriatics, because a few keratic precipitates or cells in the aqueous were discovered.

The vagueness in the approach to this problem is due largely to the manner in which cases of secondary glaucoma have been classified. Of course, the ideal classification would be an etiologic one. There have been occasional reports of cases in which the causative

factor has been demonstrated. Weingott [1] reported 3 cases of gonococcic iridocyclitis with glaucoma. However, in the majority of these cases, the cause is unknown. Fralick, Cooper and Armstrong [2] were unable to discover a causative agent in any of their 261 cases of glaucoma associated with iridocyclitis. For the present, a discussion of treatment cannot be based on etiologic considerations. As a matter of fact, it is difficult to find any suitable criteria for a practical classification. Weekers [3] discussed treatment without attempting to classify the cases.

At best, the criteria for distinguishing between primary and secondary glaucoma are rather arbitrary. At one time there was a tendency to classify as secondary glaucoma any disease in which there occurred pigment deposits on the posterior surface of the cornea.[4] Later, it was shown that such deposits occur in many normal eyes. An opposite point of view was taken by Thiel,[5] who stated that keratic precipitates and posterior synechia may occur in acute glaucoma as a result of the venous stasis. We will revert to this phase of the subject later in the paper. These specific examples from the literature will serve to indicate the complexity of the problem.

For the purpose of treatment, it would be advantageous if the conditions in which glaucoma is associated with iridocyclitis could be divided into therapeutic entities. In the state of present knowledge, however, one cannot hope for a definitive classification even from this point of view. Cattaneo [6] suggested such a classification by dividing his cases into the following three groups:

1. Patients in whom ocular hypertension precedes the iridocyclitis should be treated with miotics followed by ethylmorphine hydrochloride ("dionin") and epinephrine.

2. Patients in whom the two conditions occur simultaneously should be treated with mydriatics and paracentesis.

3. Patients in whom the hypertension occurs in the late stages of iridocyclitis should be treated by operation, such as iridectomy, trephine, sclerectomy or sclerotomy.

The present paper will attempt to clarify further the relationship between the clinical pictures and therapeutic criteria. For this purpose, the following classification is suggested:

1. Iridocyclitis occurring in a person with primary glaucoma
2. Relatively mild cyclitis in which ocular hypertension occurs at the onset or early in the course of the disease
   (*a*) Syndrome of recurrent glaucomatocyclitic crises
   (*b*) Iridocyclitis without posterior synechiae (or with old synechiae) associated with the early appearance of ocular hypertension
3. True secondary glaucoma resulting from iridocyclitis
   (*a*) Early: associated with plasmoid aqueous, active iridocyclitis and fresh posterior synechiae
   (*b*) Late: associated with structural changes in the filtration chanels or with long-standing uveitis

1. IRIDOCYCLITIS IN PRIMARY GLAUCOMA

Rarely, iridocyclitis may occur in association with primary glaucoma. Out of 12,000 patients, 3.1 per cent suffered from primary glaucoma, while 0.9 per cent had iridocyclitis. The expected frequency of coincidental occurrence of the two diseases in the same patient would thus be 0.028 per cent, or about 3 cases out of 12,000. Actually, 2 such cases were observed in this series. One of these will serve as an example.

A. M., a 67 year old housewife, was first seen in 1933 with acute iridocyclitis of the left eye, which was followed on the next day by a similar inflammation of the right eye. She improved with atropine and scopolamine therapy, but the ocular tension remained elevated. The eyes became white, and the patient did not return to the office until two years later. At this time, she had tension of 65 mm. in both eyes and deep cupping of both disks. The right field was normal, but the left showed pronounced nasal contraction. The picture was that of chronic simple glaucoma without symptoms. Bilateral Elliot trephine operations normalized the tension, and her status had remained relatively unchanged to the time of writing.

The condition in this case was treated at first as secondary glaucoma; only the subsequent course revealed the true nature of the disease. Fortunately, the use of atropine and scopolamine in this case did not have any disastrous effects. Conditions of this type, however, should be treated with caution. At first, treatment with the miotic is discontinued. If the anterior chamber has a narrow angle, phenylephrine hydrochloride ("neo-synephrine hydrochloride"), 10 per cent, may be used to break up or prevent synechiae. In the presence of a wide angle, a filtering bleb or an iridectomy coloboma, homatropine may be used cautiously.

While the low incidence of these cases makes them less important clinically, they serve to emphasize the fact that the presence of iridocyclitis does not automatically stamp a case of glaucoma as secondary.

2. MILD CYCLITIS WITH GLAUCOMA

One occasionally encounters a condition which, at first, seems to have all the features of primary glaucoma. Within a few days, a few cells are seen in the aqueous or a few keratic precipitates are discovered. According to the accepted teaching, the diagnosis should then be changed to secondary glaucoma. In the mind of the average ophthalmologist, it is almost mandatory to change to treatment with mydriatics. Yet, if the tension has been fairly well controlled or, on the other hand, if it is very high, he hesitates to use atropine or homatropine. It has been our experience that this mental reservation is justified.

From physiologic considerations, it seems plausible that the presence of a large number of cellular elements, fibrin and other plasma proteins may cause a rise in the intraocular pressure, by mechanical blockage of the filtration channels, by increasing the colloid osmotic pressure of the aqueous or by a combination of both factors. However, these mechanisms cannot be invoked to explain a tension of 70 to 90 mm. when only a few keratic precipitates or cells are present, in the absence of an abnormal aqueous ray. The mechanism responsible for the rise in intraocular pressure in these cases is undoubtedly different from that causing glaucoma secondary to active iridocyclitis.

Syndrome of Recurrent Glaucomatocyclitic Crises.—This condition was described as a clinical entity in a previous report.[7] It is characterized by recurrent attacks of unilateral glaucoma associated with mild cyclitic signs. The patient complains of vague ocular discomfort, but no real pain. The visual acuity is usually normal, even at the height of the attack. The eye shows little or no evidence of congestion or ciliary injection, but there may be a slight scleral flush if the tension

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2. Fralick, F. B.; Cooper, J. H., and Armstrong, R. C.: Uveitis with Secondary Glaucoma, Tr. Am. Acad. Ophth. **47**: 92-99, 1942.
3. Weekers, L.: Treatment of Ocular Hypertension Complicating Iridocyclitis, Arch. d'opht. **53**: 166-176, 1936.
4. Malling, B.: Relations Between Iridocyclitis and Glaucoma, Acta ophth. **1**: 97-130, 1923. Larsen, H.: Relation Between Iridocyclitis and Glaucoma, Acta ophth. **1**: 345-352, 1923.
5. Thiel, R., in Schieck, F., and Bruckner, A.: Kurzes Handbuch der Ophthalmologie, Berlin, Julius Springer, 1931, vol. 4, p. 707.
6. Cattaneo, D.: Hypertensive Iridocyclitis: Therapy Based on Etiologic Classification; Cases, Boll. d'ocul. **15**: 1115-1141, 1936.
7. Posner, A., and Schlossman, A.: Syndrome of Unilateral Recurrent Attacks of Glaucoma with Cyclitic Symptoms, Arch. Ophth. **39**:517-535 (April) 1948.

is very high. A few cells and keratic precipitates may be present at the first examination, or they may appear a day or two later. The ophthalmologist is amazed to find an ocular tension of 60 mm. or over, and in some cases as high as 90. There may be a history of one or more previous attacks. We reported 9 cases of this type. The chamber angle was moderately narrow in one half of the patients examined with the gonioscope and wide in the other half. None of the patients showed peripheral anterior synechiae. Without treatment, the tension returns to normal within one to three weeks, although there may be spontaneous fluctuations during this time. The keratic precipitates disappear within a month after subsidence of hypertension. The visual field remains unchanged over several years, despite recurrent attacks. Widened angioscotomas may be noted during the attack. The condition is frequently associated with allergy and essential hypertension. If heterochromia is present, the eye with the lighter-colored iris is affected. The other eye remains normal. The following case history illustrates the essential features of this syndrome.

In 1927 R. M., a 52 year old housewife, began to have attacks of edematous swellings in different parts of the right side of the face and neck, associated with headache and misty vision of the right eye. An ophthalmologist found the tension of this eye to be 70 mm. Schiotz and prescribed pilocarpine. The following day the tension was normal. She continued to use low concentrations of pilocarpine, even though her tension remained normal. In June 1933, she complained of blurred vision in the right eye of two days' duration. The eye was white. The tension was 45 mm., and a few fresh keratic precipitates were present. She was given homatropine, and the tension subsided within three days. No foci of infection were found. The precipitates disappeared within three weeks. In February 1934, during a similar episode, she was again given homatropine and subsidence of the attack followed within a few days. During the following year, in spite of the prophylactic use of pilocarpine, another attack occurred and subsided with pilocarpine therapy.

She was followed in this office since 1942 at monthly intervals by Dr. Schoenberg and later by us and suffered no recurrences until November 1947, when she experienced some blurring of vision and halos of the right eye. The tension was 66 mm. in the right eye and 23 mm. in the left. The vision of the right eye was 20/25 with correction. Pilocarpine, 1 per cent, increased the blurring of vision and failed to reduce the tension. She used 0.25 per cent pilocarpine twice a day and felt relatively comfortable. It was not until the third day that a few precipitates appeared on the posterior surface of the cornea. The tension fluctuated between 36 and 90 mm., until two weeks after the onset, when it dropped to 15 mm. (7 mm. less than the unaffected eye). As of the time of writing, the tension had remained normal. The keratic precipitates disappeared within a month. The field showed widened angioscotomas at the height of the attack but returned to normal. A pupillogram, made by Dr. Otto Lowenstein in March 1947, showed a bilateral curve similar to that in primary glaucoma. Gonioscopic study showed both chamber angles to be open and wide even during the attack. Patient had mild essential hypertension.

In treating these patients, one should bear in mind that the attack is self limited. If possible, it may be wise to follow at least one attack without treatment or with placebo treatment. Since this syndrome may be regarded, in a sense, as a form of glaucoma intermediate between primary and secondary, it is best to avoid both strong miotics and strong mydriatics, particularly eserine, neostigmine, di-isopropyl fluorophosphite (DFP) and atropine, no matter how high the tension rises. We have found that pilocarpine in concentrations of 0.5 to 2 per cent is usually effective in lowering the tension, at least temporarily. Although it may cause myopia, it does not cause any discomfort. Epinephrine bitartrate, 2 per cent, and "neo-synephrine hydrochloride," 10 per cent, may also reduce the tension, even though the pupil becomes dilated. Eserine and neostigmine may give rise to congestion, pain and even elevation of tension. DFP has not been used in this group, but one would expect similar effects from it. Since the disease is self limited and causes no permanent impairment of the visual functions, surgical treatment is not indicated.

Iridocyclitis Without Posterior Synechiae Associated with Early Glaucoma.—Patients with iridocylitis without posterior synechiae associated with early glaucoma show a large number of keratic precipitates and slight ciliary injection, observations which indicate the presence of active cyclitis. In some cases, the precipitates are so numerous that the entire posterior cornea is studded with them. They do not form posterior synechiae during the course of the attack. The ocular hypertension occurs concomitantly with, or early in the course of, the cyclitis. Both the hypertension and the keratic precipitates persist longer than in the syndrome of glaucomatocyclitic crises. Both eyes may be affected.

The patients should be treated with pilocarpine up to 2 per cent alternated with phenylephrine hydrochloride, 2.5 per cent or 10 per cent. The latter drug has a threefold action: it alleviates congestion, dilates the pupil and helps to lower the tension. The most important criterion in the treatment is the presence or absence of posterior synechiae. Pilocarpine may be used safely as long as there is no tendency toward the formation of posterior synechiae. For this reason, it is advisable to study the eye frequently with phenylephrine hydrochloride mydriasis. If an old synechia is noted at the first examination, it need not influence the course of treatment. It is well known that these patients tolerate a moderate elevation of tension, up to 40 or 45 mm., for some time without losing field. Even if such elevation persists for several weeks, the physician need not be alarmed. If the tension is higher and does not respond to medication, sorbitol may be used intravenously or paracentesis performed.

These cases of relatively mild cyclitis with glaucoma, and particularly the syndrome of glaucomatocyclitic crises, give the impression that there is no direct causal relationship between the cyclitic manifestations and the glaucoma. Even if one believes that both the cyclitis and ocular hypertension have the same causative factor, one still does not know what this factor is. In some glaucomatocyclitic crises there are no keratic precipitates or cells for the first few days, and in others visible signs of cyclitis are absent throughout the attack. The thought cannot be dismissed that some cases of so-called primary glaucoma may be related to this group. Evidently, the lack of a sharp line of demarcation has led Thiel to include under primary glaucoma some conditions with a few keratic precipitates. After all, the vascular phase of congestive glaucoma is, in part, an expression of an irritability of the ciliary body, as demonstrated by the sensitivity to strong miotics. The discovery of a few keratic precipitates should not, per se, lead to a radical change in the course of treatment.

3. TRUE SECONDARY GLAUCOMA

Early Appearance of Ocular Hypertension.—This group is made up of cases in which glaucoma may be assumed to be a direct result of the iridocyclitis. In cases of active iridocyclitis, the hypertension may be

due either to the change in osmotic pressure of the aqueous or to mechanical blockage. The treatment should be directed to the uveitis. Mydriatics are useful either to break up the synechiae or to prevent new ones from forming during the acute phase. Atropine may be combined or alternated with 10 per cent phenylephrine hydrochloride to obtain maximum dilatation. Sometimes the tension will drop as soon as the synechiae have been freed. If the tension remains high, it is advisable to discontinue the atropine and to rely on milder mydriatics. Daily paracentesis may be helpful in keeping the tension down until the iridocyclitis is controlled. Retrobulbar injection of alcohol has been recommended by Weekers.[3]

Systemic treatment is directed toward the causation when the latter is known. Salicylates and fever therapy are useful in combating uveitis. Sorbitol may help to reduce the hypertension.

Late Appearance of Ocular Hypertension.—In this group may be included all cases of secondary glaucoma due to structural changes in the eye in which the uveitis is either healed or relatively quiescent. Since the hypertension constitutes the more important therapeutic problem, mild miotics and intravenous therapy may be employed. Surgical intervention is necessary in a large proportion of the patients. Iridectomy, iridencleisis or cyclodialysis are operations which have been used. The type of operation depends on the individual preference of the ophthalmologist and on the clinical characteristics of the specific case.

Certain cases of secondary glaucoma following cataract operation are due to sluggish uveitis. Two years ago, at the American Medical Association Convention, Chandler and Johnson [8] called attention to the mechanism involved in this condition. They advocated mydriatics, discission, transfixion of the iris and iridectomy.

SUMMARY

For the purpose of treatment, the glaucoma associated with iridocyclitis is divided into three types. Emphasis is placed on the second type, which includes the syndrome of glaucomatocyclitic crises and other conditions in which posterior synechiae are not formed. Treatment in these cases differs from the conventional formula for secondary glaucoma. The use of mild miotics in combination with phenylephrine hydrochloride ("neo-synephrine hydrochloride") is advocated.

ABSTRACT OF DISCUSSION

DR. PAUL A. CHANDLER, Boston: In regard to the specific types discussed by the authors, the first group consists in iridocyclitis occurring in a person with primary glaucoma. In the case cited the condition might well be classified residual glaucoma after subsidence of the uveitis. As the authors stated, iritis or uveitis occurring in a patient with known primary glaucoma is extremely rare, and few of us have had the opportunity of treating many of these patients. On the basis of experience with a single case, I feel that the glaucoma may be disregarded and atropine employed for the duration of the inflammation and then miotic therapy may be resumed. The syndrome designated as glaucomatocyclitic crises is an interesting one. The evidence of cyclitis is always mild. Even in the presence of a wide angle one sees an acute rise in tension in every way similar to that of primary acute glaucoma. In the authors' experience the tension fell with such widely different types of treatment as dilatation of the pupil, constriction of the pupil and the use of epinephrine. The fall in tension also occurred spontaneously. I have had a similar experience after a single paracentesis; tension may remain normal for weeks without further treatment. One wonders, therefore, whether the tension falls because of or in spite of treatment. When one has observed such a case long enough to be certain it is of this type, it should be considered as one of primary glaucoma and treatment planned accordingly, disregarding the keratitic precipitates and cells entirely. In chronic low grade iridocyclitis without posterior synechiae, the glaucoma may be mild or severe or may not occur at all. It is difficult to make a rule for treatment in these cases. The most effective treatment for the glaucoma is often arrived at by trial and error. It is perhaps wise to start off with atropine, with or without epinephrine, and finally miotics if necessary. In long-standing cases which show progressive cupping of the disk and loss of field, a trephining operation is justified and may be effective. The authors refer to iridocyclitis with posterior synechiae complicated by glaucoma. This may be a most difficult type to deal with. Sympathetic uveitis complicated by glaucoma is the worst example of this type. Dilatation of the pupil is essential in these cases. The epinephrine compounds may have great value, and, finally, palliative surgical treatment may have to be employed. The authors suggest conservatism in surgical procedures in these cases, and I am in most hearty agreement. Repeated paracentesis certainly favors the development of peripheral anterior synechiae. It is not the level of the tension per se, but what it does to a particular eye, that is important. One may be conservative as long as the function of the eye is not impaired by the tension. The final type discussed, residual glaucoma after the uveitis has quieted down, is to all intents and purposes primary glaucoma. In this type of case I have had better success with iridencleisis combined with sclerectomy than with other types of operation.

DR. ALBERT D. RUEDEMANN, Detroit: Dr. Posner and Dr. Schlossman have drawn attention to the therapeutic differentiation in the treatment of the glaucomas. They stress the point that causative factors have not been found in the production of glaucoma. I would like to call attention to this, because that refers to effect and not cause. The cause of glaucoma has not been found, simply because ophthalmologists do not know how to look for it. Ophthalmologists refer patients to medical physicians who know nothing about the cause of glaucoma or what to look for. Therefore, we, as ophthalmologists, will have to change our method of investigation of the cause of glaucoma and search for the minimal pathologic changes in the other parts of the body, as well as in the eye. With the advent of gonioscopy and the further study by microscopy of changes in the eye, it would be advisable to investigate the rest of the host from the same point of view instead of trying to find the changes in roentgenograms of the chest and similar lesions. Minor changes in the blood and microscopic changes in the general system must be investigated. The therapeutic differentiation, as stressed by Dr. Schlossman, brings out one important point: the prolonged use of any miotic may in itself cause trouble, because the sensitivity to the drug used will develop in the patient. One should search for posterior synechiae; the pupil should be dilated with epinephrine, and periodically the eye should be allowed to recover from the prolonged use of miotics. In cyclitis, with and without glaucoma, it might be possible that there would be an irritating aqueous which, on exposure to light, undergoes a photochemical change, and that produces the irritating cyclitis. The use of any of the stronger miotics in some cases of glaucoma not only does not help prevent further increase in tension but will add to the increase in tension by the secondary reaction to the drug. The numerous drugs mentioned would make it advisable to know that there is a decided sensitivity to drugs in the eye, and, unless one is aware of this to start with, one not only does not prevent further rise in tension but may increase it.

DR. HARVEY THORPE, Pittsburgh: I, too, have seen numerous cases of secondary glaucoma due to cyclitis. I was impressed, however, with the fact that in cases of uveoparotid syndrome, which is now considered to be sarcoidosis, there is a greater frequency of secondary glaucoma than in cases of subacute iridocyclitis. In the patients with milder forms of sarcoidosis

8. Chandler, P. A., and Johnson, C. C.: A Neglected Cause of Secondary Glaucoma in Eyes in Which the Lens Is Absent or Subluxated, Arch. Ophth. **37**: 740-771 (June) 1947.

of the eye there are often few keratic precipitates visible on the endothelium. On the other hand, if the patients are examined gonioscopically, one observes a greater incidence of keratic precipitates in the chamber angle than one would be led to suspect by the regular examination. Therefore, one might consider these cases from the etiologic point of view in searching for sarcoidosis, which has definite clinical pathologic manifestations. Drs. Posner and Schlossman, too, have pointed out that one must consider the possibility of the occurrence of cyclitis in a glaucoma host. In some cases of sarcoidosis a rise in intraocular tension subsided spontaneously, in spite of the fact that homatropine, pilocarpine and 10 per cent phenylephrine hydrochloride ("neo-synephrine hydrochloride") seemed to exert no influence. On the other hand, 2 of the patients with uncontrollable conditions required a wide basal iridectomy. I recall 1 case of bilateral glaucoma with subacute cyclitis in which the tension returned to normal after three weeks, although it had failed to react favorably to either miotics or mydriatics. This, too, was a case of uveoparotid fever, or sarcoidosis, as this syndrome is now understood. The patient, a woman of 20, had facial paralysis on the left side, followed by facial palsy on the other side about four weeks later. This was associated with enlargement of the parotid and maxillary glands, enlargement of the sternal shadow observed roentgenographically and some of the other symptoms associated with sarcoidosis. Her mother had narrow angle glaucoma in one eye associated with an intumescent lens. Of course, all factors bearing on these cases, including etiologic factors, must be considered when one thinks of diagnosis and therapy. I am sure that Drs. Posner and Schlossman have considered these. In some of my cases, foreign protein therapy, in the form of milk injections and typhoid injections, have been of extreme value.

Dr. Conrad Berens, New York: I would like to ask two questions: First, what has been the experience of Dr. Posner and Dr. Schlossman in the management of cases of allergic disease? Recently, I had several patients who were allergic to all miotics. I have recently tried giving them "antistin" (2-[N-phenyl-N-benzyl-aminoethyl] imidazotin) or one of the other antihistaminic preparations along with the miotic. The second question pertains to the management of patients who have sympathetic disease. I am fortunate in having seen such a patient, who had tension varying from 45 to 70. Everything had been tried before I saw the patient, who was referred for consultation. There was no anterior chamber to speak of; I could not get fluid out even by aspiration. Realizing the cataract would have to come out some day, I performed an iridectomy, although I had never been successful with this procedure previously. When this did not control the tension, retrobulbar injections of alcohol were made. I do not hesitate to use 30 per cent alcohol, as first suggested to me by Dr. Edward Hartmann in 1940. It has been a helpful procedure in cases of uveitis with secondary tension. In patients whose vision is poor I use stronger solutions, that is, up to 50 and 70 per cent alcohol. For the patient I speak of, the tension remained elevated. Aspiration was again attempted, and when no fluid could be withdrawn I tried cycloelectrolysis. I have been using this procedure for two and a half years. Using a 2 mm. needle, my co-workers and I gave fifty punctures over the lower half of the globe, applying 5 milliamperes of current for five seconds. Surprisingly enough, there was practically no reaction. At the end of a week the patient returned to his home. The other day I saw the oculist who referred the patient. He said that the patient's tension was remaining down. This procedure should be given consideration. So far, we have observed less secondary congestion postoperatively than we had observed with cyclodiathermy. I have used this procedure in about 40 instances to date, although only twice in patients with cyclitis. One patient had a blind eye, which I wished to preserve. The procedure was only partially successful, and the tension remained about 40. Cycloelectrolysis is something one may consider when everything else fails.

Dr. Everett L. Goar, Houston, Texas: I am surprised that no one has brought up the question of secondary glaucoma due to iridocyclitis following cataract extraction, especially the capsulotomy type. This is one of the most troublesome types to treat, as it is no doubt often due to sensitivity to lens protein. One of the first signs of increased intraocular pressure is bedewing of the corneal epithelium, as seen by the biomicroscope in retroillumination. This not infrequently follows discission of a secondary membrane. I can recall producing uveitis and glaucoma in both eyes of a patient by discission and then treating one eye with a mydriatic and the other with a miotic.

Dr. Posner: I want to express my thanks to the discussers for the interest they have shown in this paper, which, after all, is only a modest attempt at analysis and classification of glaucoma associated with iridocyclitis. I can answer Dr. Berens' first question in regard to "antistin" (2-[N-phenyl-N-benzyl-aminomethyl] imidazotin). I have 1 patient, a physician, who is subject to frequent recurrences of glaucomatocyclitic crises. He has tried every antihistaminic drug, including "antistin," and apparently it has no effect. I cannot hope to comment on all the other discussions in the limited time. I would like to reemphasize the fact that, clinically, secondary glaucoma is not a single entity and that one must modify treatment according to the clinical behavior of the disease. I believe that a more careful analysis and study of glaucoma associated with mild cyclitis, which forms a borderline between primary and secondary glaucoma, may help in time to shed some light on the pathogenesis both of glaucoma and of cyclitis.

TREATMENT OF THE FAT AND THE LEAN

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The extreme variation which body weight may undergo is indeed remarkable. There is a report, probably true, of a man weighing over 1,000 pounds (453.5 Kg.), while a subject weighing 779 pounds (353.3 Kg.) has been studied by competent observers.[1] At the other extreme, a 30 year old woman has recently been observed at the Mayo Clinic who weighed 44 pounds (20 Kg.) and was 5 feet 3.5 inches (161.3 cm.) in height.

While such spectacular deviations attract interest, lesser grades of underweight and overweight are of great importance in the health of the individual and are of much greater importance from the standpoint of public health than are sideshow freaks. In the latter half of life even moderate obesity is dangerous, and it has been shown that between the ages of 45 and 50 years 25 pounds (11.3 Kg.) of excess weight results in an increase of 25 per cent in mortality.[2] Greater degrees of obesity are a correspondingly greater hazard to life and health. Obesity has been found to be associated with an increased incidence of hypertension, diabetes, cancer, heart disease, nephritis, atherosclerosis, toxemia of pregnancy, cirrhosis of the liver, emphysema and varicose veins;[3] it seems certain that correction or prevention of obesity would greatly diminish the incidence of these degenerative diseases for which we often have little specific therapy.

Underweight is less strikingly related to disease and increased mortality, and yet it has been demonstrated

Read at the Interim Session of the American Medical Association, Cleveland, Jan. 7, 1948.
From the Mayo Foundation (Dr. Gastineau, Fellow in Medicine) and the Mayo Clinic (Dr. Rynearson and Mrs. Irmisch).

1. Beardwood, J. T., Jr.: Obesity, in Piersol, G. M.: The Cyclopedia of Medicine, Surgery and Specialties, Philadelphia, F. A. Davis Company, 1945, vol. 10, pp. 706-739.
2. Newburgh, L. H.: Obesity, Arch. Int. Med. **70**: 1033-1096 (Dec.) 1942.
3. Dublin, L. I.: Influence of Weight on Certain Causes of Death, Human Biol. **2**: 159-184 (May) 1930.

that the underweight person under the age of 30 has an increased susceptibility to tuberculosis.[3] It has been said that the greatest life expectancy occurs in those persons who are slightly overweight up to the age of 30, of average weight from ages 30 to 40 and distinctly underweight thereafter.[4]

For all these reasons it would be an important advance in the health of the nation if all physicians were alert to the dangers of overweight and if they applied a missionary zeal to the correction of this condition.

ETIOLOGIC FACTORS

Leanness and obesity have a common cause: a disproportion between caloric intake and caloric requirement. If the person eats more than he requires to maintain normal weight he becomes obese; if he eats less, he becomes thin.

Psychologic Aspects.—The causes for undereating and overeating in the presence of an adequate supply of food are to some extent conjectural, but one can be certain that emotions, training and habit exert a considerable influence.

If mother prides herself on setting a good table, if dad eats heartily and with obvious enjoyment, if the household attitude and feeling is that good food in generous quantities is the end and purpose of life, it is not surprising that an entire family may become obese without the mediation of genes. Thus, imitation of elders and attitudes acquired in childhood may govern eating habits in later life.[5] In addition to variations in body weight caused by simple training and habit, there are those caused by the neuroses and psychoses. Investigations by a number of psychiatrists of the lean and the fat have suggested a strikingly high incidence of psychologic aberrations,[6] and yet the reason is not always apparent why a certain conflict or anxiety may cause polyphagia in one person, anorexia in another and have no effect on the appetite of a third.[7] The apparently increased incidence of neuroses in association with obesity or leanness may be open to some question, since most such investigations have not included psychiatric studies of persons of normal weight for control purposes.

The Hypothalamus.—We have indicated how the cerebral cortex may play an important role in control of weight through the effect of emotions and training on appetite. More primitive portions of the nervous system undoubtedly exert some influence on appetite on a more automatic level, however.

In recent years experiments on animals have shown that destruction of certain nuclei in the posterior portions of the hypothalamus will cause a voracious appetite, so that the intake of food is limited only by the capacity of the gastrointestinal tract. Extreme obesity quickly and invariably develops, but if the animal is fed amounts equivalent to those consumed by control animals, the weight remains normal.[8] Such experiments strengthen the earlier hypothesis of Wilder[9] that the diencephalon contains a center for the control of appetite, and one might infer that a "constitutional tendency" toward leanness or obesity might depend on the sort of hypothalamus that one happens to inherit.

These experiments also suggest that the obesity which Fröhlich described in 1909 as the result of an intracranial lesion was the consequence of hypothalamic injury.[10] The terms "Fröhlich's syndrome" and "adiposogenital dystrophy" both have been applied frequently to obese but healthy adolescent boys whose genitals are partly obscured by fat. When these terms are used to describe the appearance of such persons, it carries the unfortunate implication of some fundamental endocrinologic or intracranial disorder. One might postulate a temporary derangement of hypothalamic function without demonstrable structural change to explain the clinical appearance of such boys, but no convincing evidence for this exists. For these reasons we would restrict the terms "Fröhlich's syndrome" and "adiposogenital dystrophy" to those obese, sexually immature males who are definitely older than the age of normal puberty and who have additional evidence of a lesion involving the region of the hypothalamus and hypophysis.

Endocrine Factors.—In the past, endocrine disorders have been the favorite scapegoats on which to place the blame for both obesity and leanness, and there have been attempts to diagnose many varities of endocrinopathy by slight variations in the distribution of body fat. Actually, endocrine disorders are rarely a cause of either pronounced obesity or leanness. Distribution of fat is of little diagnostic significance except in the instances of Cushing's syndrome and progressive lipodystrophy.

Lipodystrophy is a rare nonendocrine condition characterized by the unequal distribution of fat, large masses appearing in some portions of the body and atrophy of the subcutaneous tissues in others.

Cushing's syndrome is now considered to be a syndrome of hyperfunction of the adrenal cortex, and it is usually but not invariably accompanied by an increase in weight. The appearance of such a patient is rather distinctive, however, and it is only in these exceedingly rare instances that obesity is the consequence of adrenal cortical dysfunction.

The frequent association of obesity with functioning islet cell tumors of the pancreas is the result of the increased intake of food which these patients find necessary to relieve attacks of hypoglycemia. Anxiety may at times cause symptoms of hypoglycemia which are associated with moderate lowering of the concentration of blood sugar in the absence of an islet cell tumor; however, there is no such consistent association of obesity with this type of functional hypoglycemia as there is with the hypoglycemia resulting from islet cell tumor.

Hypothyroidism has been blamed frequently for obesity, but no conclusive evidence for this has been advanced. Plummer[11] in a study of spontaneous myxedema found no tendency toward obesity; furthermore, the basal metabolic rate in obesity is ordinarily found

4. Girth and Death, Statist. Bull. Metrop. Life Ins. Co. **18**: 2-5 (May) 1937.

5. Bruch, H., and Touraine, G.: Obesity in Childhood; Family Frame of Obese Children, Psychosom. Med. **2**: 141-206 (April) 1940.

6. Bruch and Touraine.[5] Freed, S. C.: Psychic Factors in the Development and Treatment of Obesity, J. A. M. A. **133**: 369-373 (Feb. 8) 1947. Rahman, L.; Richardson, H. B., and Ripley, H. S.: Anorexia Nervosa with Psychiatric Observations, Psychosom. Med. **1**: 335-365 (July) 1939.

7. Johnson, W. M.: Different Weight Responses to the Same Provocation, J. A. M. A. **133**: 1238 (April 19) 1947.

8. Brobeck, J. R.: Mechanism of the Development of Obesity in Animals with Hypothalamic Lesions, Physiol. Rev. **26**: 541-559 (Oct.) 1946. Heinbecker, P.; White, H. L., and Rolf, D.: Experimental Obesity in Dog, Am. J. Physiol. **141**: 549-565 (June) 1944. Hetherington, A. W.: The Production of Hypothalamic Obesity in Rats Already Displaying Chronic Hypopituitarism, ibid. **140**: 89-92 (Oct.) 1943.

9. Wilder, R. M.: The Regulation of the Weight of the Body, Internat. Clin. **1**: 30-41 (March) 1932.

10. Bruch, H.: Fröhlich Syndrome; Report of Original Case, Am. J. Dis. Child **58**: 1282-1289 (Dec.) 1939.

11. Plummer, W. A.: Body Weight in Spontaneous Myxedema, Tr. Am. A. Study Goiter, 1940, pp. 88-98.

to lie within quite normal limits.[12] There is no conclusive evidence that obesity may result from lesions or dysfunction of the hypophysis, although almost every possible combination of hyperfunction or hypofunction of any or all of the three lobes of this gland has been suggested as a cause for obesity. Although hypogonadism has been observed to cause obesity consistently in castrated animals, no such certain relationship appears to exist in human beings. The evidence for "pineal obesity" is equivocal, and it is entirely possible that the association of pineal tumor and obesity may be the result of hypothalamic damage. Dercum's disease or adiposis dolorosa has not been established as an entity, and the term should be discarded.

When confronted with a patient weighing 60 to 70 per cent of his ideal weight, with no cause for his emaciation apparent, one should think immediately of anorexia nervosa (the figure). This syndrome is characterized by the following sequence of events. The patient is usually a woman below the age of 30 in whom there develops an aversion, of psychologic origin, to food, the exact mechanism of which often is not clear. This aversion to food leads to slow starvation and emaciation, which lead in turn to a functional hypopituitarism which is reversible by means of dietary therapy. These patients display a surprisingly great amount of physical and mental activity in spite of advanced emaciation. A low basal metabolic rate, an appearance of somewhat accelerated aging, amenorrhea, pallor and a tendency toward a growth of fine hair over the body and face are among the findings.[13]

Fig. 1.—A characteristic case of anorexia nervosa. This 20 year old woman made a good response to feeding. (*a*) Before treatment, Oct. 23, 1944; weight 61 pounds (27.7 Kg.). (*b*) After treatment, June 14, 1946; weight 111 pounds (50.3 Kg.). (From Berkman, J. M.; Weir, J. F., and Kepler, E. J.: Clinical Observations on Starvation Edema, Serum Protein and the Effect of Forced Feeding in Anorexia Nervosa, Gastroenterology **9**: 357-390 (Oct.) 1947.

In hypopituitarism secondary to an organic lesion there is rarely loss of weight comparable to that observed in anorexia nervosa; Sheehan and Murdoch[14] in their extensive study of postpartum pituitary insufficiency failed to record emaciation as a symptom. The diagnostic term "Simmonds' disease" requires a clarification that is beyond the scope of this paper; it is sufficient to say that pituitary insufficiency rarely is found to be the cause of emaciation.

Metabolism of Energy.—Many abnormalities of the metabolism of energy have been postulated as causes of both obesity and leanness, but none have been convincingly demonstrated. A widely held but erroneous opinion is that the gastrointestinal tract of obese person absorbs a greater proportion of the food passing through it than does that of a normal person.[2] Similarly, it is commonly but wrongly believed that thin persons are thin because they fail to absorb food normally.[13] It is only in those patients with sprue or similar syndromes that inadequate absorption may be assumed to be a cause of leanness.

Constitutional Factors.—The possibility of an inherited tendency to obesity is suggested by observations of strains of obese yellow rats in which obesity tends to be inherited in a dominant manner.[16] It is generally agreed that obesity [17] and leanness each have a tendency to occur with greater frequency in certain families than in others. But it is difficult to hazard a guess whether genes or environment exerts the greater influence on eating habits. It is likely, however, that in some persons inheritance is of the greater importance, while in others, or in the same persons under different circumstances, psychologic and environmental influences are the stronger.

It is a common rationalization of obese patients to say that they cannot help being fat "because my parents were big people," and they fear that to reduce to a normal weight would be to endanger their health, since they were "meant to be fat." Such patients should be told emphatically that their fat is no less dangerous to them than to those without a hereditary tendency to obesity and that diet will be no less efficacious in their cases.

Many other hypotheses as to the cause of obesity and leanness have been advanced, but they are not well enough founded to be considered in this brief article.

CONTRAINDICATIONS TO LOW CALORIC DIETS

Contraindications to reduction are few. It is usually best, however, to postpone reduction in patients who have peptic ulcer or tuberculosis until the activity of the process is abated, at which time a diet of 1,200 to 1,500 calories adapted to the needs of the patient may be prescribed. Hypertension and old age certainly are not contraindications to reduction but rather are urgent reasons for it.

THERAPY

Diet.—The treatment for both obesity and leanness is essentially the same: a diet and such psychotherapy as is necessary to cause the patient to adhere to it.

When the amount of weight to be lost is large or when a rapid loss is important, diets of 600 to 1,000 calories, in which the portions of food are weighed, are usually prescribed. When a less rapid rate of loss is required, diets of 1,000 to 1,500 calories, in which the food is measured by volume, may be used. In tables 1 and 2 are given 1,000 calory and 3,000 calory diets for which the size of the portions of food is stated in terms of both weight and volume. Reduction diets in greater variety are given elsewhere.[18] Although the weighing of food seems a difficult and tedious procedure, it is actually a rather simple task if a scale with a movable face, such as that designed for the use of diabetics, is utilized. The greater accuracy attained

12. Boothby, W. M., and Sandiford, I.: Summary of the Basal Metabolism Data on 8,614 Subjects with Especial Reference to the Normal Standards for the Estimation of the Basal Metabolic Rate, J. Biol. Chem. **54**: 783-803 (Dec.) 1922.

13. Berkman, J. M.: Anorexia Nervosa: Diagnosis and Treatment of Inanition Resulting from Functional Disorders, Ann. Int. Med. **22**: 679-691 (May) 1945; Anorexia Nervosa, Anterior-Pituitary Insufficiency, Simmond's Cachexia and Sheehan's Disease: Including Some Observations on Disturbances in Water Metabolism Associated with Starvation, Postgrad. Med. **3**: 237-246 (April) 1948.

14. Sheehan, H. L., and Murdoch, R.: Post-Partum Necrosis of Anterior Pituitary: Effect of Subsequent Pregnancy, Lancet **2**: 132-135 (July 16) 1938.

15. Strang, J. M., and Evans, F. A.: Undernutrition and Its Treatment by Adequate Diet, Ann. Int. Med. **7**: 45-63 (July) 1933. Strang, J. M., and Cox, A. B.: The Analysis of High Caloric Diets in Relation to Weight Changes, ibid. **7**: 152-164 (Aug.) 1933. Small, S. M., and Milhorat, A. T.: Anorexia Nervosa: Metabolism and Its Relation to Psychopathologic Reactions, Am. J. Psychiat. **100**: 681-685 (March) 1944.

16. Danforth, C. H.: Hereditary Adiposity in Mice, J. Hered. **18**: 153-162 (April) 1927.

17. Gurney, R.: The Hereditary Factor in Obesity, Arch. Int. Med. **57**: 557-561 (March) 1936.

18. Rynearson, E. H., and Gastineau, C. F.: Obesity, Springfield, Ill., Charles C Thomas, Publisher, to be published.

when the food is weighed usually justifies the somewhat greater effort because the actual caloric intake frequently will be 200 or more calories in excess of that prescribed if the patient measures his food by volume.

TABLE 1.—*Day's Allowance of Food*

1,000 Calory Diet	3,000 Calory Diet
1. Lean meat, fish, fowl, dry cottage cheese, 150 Gm. (5 oz.), and 1 egg. Must be free from fat, cooked without fat (no gravy)	Any meat, fish, fowl, cheese, 150 Gm. (5 oz.), and 1 egg. Cooked in any manner
2. Skim milk or buttermilk, 480 Gm. (1 pint)	Half milk and half 20% cream, 720 Gm. (¾ quart). May be plain or flavored
3. Bread or plain rolls, 60 Gm. (2-3 slices)	Bread, rolls, pancakes, hot breads, 120 Gm. (4-6 slices)
4. Cereal, none	Cereal, 15 Gm. dry (½ cup as served)
5. Starchy foods such as potato, beans (dried or lima), corn, hominy, macaroni, noodles, rice, spaghetti, none	Starchy foods (see 1,000 calory diet), 200 Gm. (1 cup)
6. Vegetables (except above), 400 Gm. (2 cups). Canned, cooked, frozen or raw	Vegetables, any, 300 Gm. (1½ cups). Canned, cooked, dried, frozen or raw
7. Fruits (see list below), 3 servings including 1 of citrus fruit or juice	Fruits, any. At least 100 Gm. (½ cup) citrus fruit or juice plus any other canned, cooked, dried, frozen or raw
8. Desserts, none except saccharin-sweetened gelatin dessert, rennet dessert or custard made with skim milk	Desserts, 200 Gm. (2 servings) of cake, cookies, ice cream, pie, pastry, pudding
9. Sweets, none except saccharin	Sweets, at least 3 tbsp. sugar, jam or jelly
10. Soups, none except clear broth or soup made from vegetable or skim milk allowance	Any thickened or cream soup, 100-200 Gm. (½-1 cup
11. Fat (butter, margarine, mayonnaise or oil), 15 Gm. (1 level tbsp.) and 20% cream, 30 Gm. (2 tbsp.)	Fat (butter, margarine, mayonnaise or oil including that used in cooking), 75 Gm. (5 level tbsp.), and 20% cream, 75 Gm. (⅓ cup) in addition to 360 Gm. in the milk
12. Miscellaneous (black coffee, clear tea, herbs, lemon juice, salt, spices, vinegar), as desired	Miscellaneous (coffee, tea, carbonated beverages, herbs, salt, spices, vinegar), in moderation

Servings of Fruit Allowed on 1,000 Calory Diet

Fresh	Water-Packed Canned
½ apple	½ cup apple sauce
1 apricot	4 halves apricots
½ banana, small	1 cup blackberries
½ cup blackberries	½ cup blueberries
½ cup blueberries	1 cup cherries, red or white
½ cup cranberries	½ cup cherries, black
½ cup currants	½ cup fruit salad
½ grapefruit	½ cup grapefruit juice
½ cup grapefruit juice	½ cup Kadota figs
¼ honeydew melon	1 cup loganberries
½ cup huckleberries	½ cup orange juice
1 lemon	1 cup peaches
2 limes	2 halves pear
1 orange, medium	2 rings pineapple
½ cup orange juice	½ cup pineapple juice
1 peach	2 plums
½ pear	1 cup raspberries
2 rings pineapple	1 cup strawberries
1 plum	½ cup white grapes
½ cup raspberries	
1 cup rhubarb	
½ cup strawberries	
¼ slice watermelon	

The success of dietary therapy is dependent in large part on the patient's knowledge of his diet, which in turn depends on painstaking and careful instruction. Such instruction provides the additional benefit of impressing the patient with the importance of diet.

Many regimens are unsuccessful because the doctor gives his patient a printed diet list with little or no explanation and instruction. Menus which are so limited as to be difficult to obtain either at home or in a restaurant are further reasons for failure. Diets given in tables 1 and 2 permit an almost infinite choice of foods, thereby avoiding monotony and some of the difficulties associated with many diets. It is desirable in the course of instruction to have the patient write out several possible menus adapting the diet to his racial and individual preferences, his economic level and his daily program of work.

TABLE 2.—*Examples of 1,000 Calory and 3,000 Calory Diets*

Foods Allowed	Sample Menu	1,000 Calory Diet: Wt., Gm.	1,000 Calory Diet: Approximate Measure (Volume)	3,000 Calory Diet: Wt., Gm.	3,000 Calory Diet: Approximate Measure (Volume)
	BREAKFAST				
Fruit, citrus	Grapefruit	100	½ medium	100	½ medium
Cereal	Whole grain cereal	...	.....	15	½ cup
Egg	Egg, soft cooked	50	1	50	1
Bacon	Bacon	...	.....	15	2 strips
Bread	Whole wheat toast	20	1 slice	40	2 slices
Butter	Butter	5	1 tsp.	14	2 squares
Beverage	Coffee	...	1 cup	...	1 cup
Cream, 20%	Cream	30	2 tbsp.	75	⅓ cup
Sugar	Sugar	...	.....	15	1 tbsp.
Jelly	Jelly	...	.....	20	1 tsp.
	DINNER				
Soup	Cream of potato soup	...	.....	100	½ cup
Meat or substitute	Roast beef	75	2½ oz.	60	2 oz.
Potato or substitute	Mashed potato, gravy	...	.....	100	½ cup
Vegetable	New cabbage	100	½ cup	75	½ cup
Salad	Sliced tomato	100	1 medium	75	½ large
Salad dressing	Mayonnaise	...	.....	15	1 tbsp.
Fruit (list, table 1)	Sliced orange	100	1 medium	...	.....
Dessert	Vanilla ice cream	...	.....	70	⅛ cup
Skim milk	Skim milk	240	½ pint	...	.....
Milk, ½ cream	Milk, ½ cream	...	.....	240	½ pint
Bread	Whole wheat bread	20	1 slice	40	2 slices
Butter	Butter	5	1 tsp.	14	2 squares
	SUPPER				
Soup	Cream of pea soup	...	.....	100	½ cup
Meat or substitute	Cold sliced ham	75	2½ oz.	60	2 oz.
Potato or substitute	Baked potato, butter	...	.....	100	1 medium
Vegetable	Green beans	100	½ cup	75	½ cup
Salad	Celery and carrot sticks	100	5-6 sticks	60	3-4 sticks
Fruit (list, table 1)	Water-packed pears	100	2 halves	...	.....
Dessert	Chocolate pudding	...	.....	100	½ cup
Skim milk	Skim milk	240	½ pint	...	.....
Milk, ½ cream	Milk, ½ cream	...	.....	240	½ pint
Bread	Bread	20	1 slice	40	2 slices
Butter	Butter	5	1 tsp.	14	2 squares
Beverage	Tea with lemon	...	1 cup	...	.....

Approximate Composition of Diets

	Unit	1,000 Calory Diet	3,000 Calory Diet
Protein	Gm.	70	90
Fat	Gm.	40	185
Carbohydrate	Gm.	100	240
Calories	....	1,040	3,000
Calcium	Mg.	850	1,280
Iron	Mg.	11	14
Vitamin A	I.U.	6,100	11,300
Thiamine	Mg.	1.4	1.8
Riboflavin	Mg.	1.7	2.4
Niacin	Mg.	11	15
Ascorbic acid	Mg.	180	145

To insure inclusion of these essential factors, the physician should prescribe a multivitamin capsule to be taken daily by the reducing patient. Salt and water may be taken in whatever quantities the patient desires.

Underweight patients require 3,000 to 3,600 calories daily, depending on their activity and body size, in order to gain weight at an appreciable rate.

Just as in the case of the obese patient, careful dietary instruction is important in the treatment of the underweight person. A 3,000 calory diet suitable for an ambulatory underweight person is given in tables 1 and 2.

For the patient with frank anorexia nervosa the services of a dietitian are most helpful. An estimate of the habitual caloric intake of these patients should be made by the dietitian. This usually will be found to be within 900 and 1,300 calories. The patient is then fed a diet containing 300 calories more per day than the estimated habitual intake, and at intervals of three to ten days as tolerated the diet should be increased by steps of 300 calories. The usual sequence is 1,300, 1,600, 1,900, 2,200, 2,500 and 3,200 calories.[19] Before treatment is started the patient should be told frankly that there will be a certain amount of abdominal discomfort with the increased diet but that this will become less and disappear with time. The patient should remain under supervision of the dietitian until the caloric intake has been stepped up at least twice, so that some measure of success is assured. Then the dietary instruction entails only two or three more steps to attain the necessary 3,000 or more calories for continued gain in weight. Constant encouragement and reassurance are necessary throughout the course of treatment. As in the treatment of obesity, the success of dietary therapy of anorexia nervosa is proportional to the strength of the physician's conviction that diet will succeed and to the ability of the physician to transmit that conviction to the patient.

Gain in weight on high caloric regimens and loss on reduction diets frequently proceed in a stepwise fashion, so that periods of as long as seven to ten days without appreciable change in weight followed by rapid gains or losses may occur.[20] This phenomenon is most likely a reflection of variations in amount of extracellular fluid and is no cause for discouragement, since a normal water balance will ultimately be attained. Restriction of salt may diminish the magnitude of this phenomenon but will have little or no effect on the final loss or gain in weight. These periods in which the weight fails to change, inaccurately measured diets and failure to allow for the energy expended in physical work or in useless movements are three of the reasons why some physicians have expressed the opinion that there are certain obese persons whose weight cannot be reduced by diet alone and that some lean patients will fail to gain weight on a high caloric diet.

With rigid adherence to a properly planned diet and with patience, one can confidently expect response in practically every case of leanness or obesity. The emaciation secondary to hyperthyroidism or to impaired gastrointestinal function, such as with sprue or chronic relapsing pancreatitis, constitutes an exception to this rule.

Psychotherapy.—It has recently been the fashion to ascribe obesity and leanness to psychologic and psychiatric factors and to emphasize psychotherapy in treatment. While not wishing to minimize the importance of these factors, we should like to remind the reader that many of these patients fail to demonstrate significant psychologic deviation and require no formal psychiatric therapy. These persons should be warned frankly of the dangers of their obesity or leanness and told that the only effective treatment is proper diet. The obese patient should be reassured that the reduction program will not harm him and that a familial tendency to, or the long duration of, obesity is no bar to therapy. He should be warned to disregard relatives and well-meaning friends who unconsciously, unintelligently or jealously associate loss of weight with ill health and tell him daily that "this diet makes you look terrible." The patient should be carefully instructed in his dietary program; simply handing him a sheet of instructions and telling him to follow them usually fails because the patient's understanding of the directions is incomplete and because the offhand manner of the physician lessens the patient's respect for the diet. The success achieved is usually proportional to the confidence of the physician in the dietary program. Regular office visits are important to maintain the morale and the determination of the patient to adhere to the diet. Limitation of space prevents discussion here of the problems posed by the patient with significant psychologic aberrations. Discussion of such problems may be found elsewhere.[21]

Other Therapy.—In obesity certain adjuvants to dietary therapy have been suggested.

It has been demonstrated that amphetamine sulfate ("benzedrine sulfate") and its dextrorotatory isomer, "dexedrine," will diminish appetite.[22] It is to be emphasized that amphetamine affects obesity only through the mediation of appetite, and the compulsive eater may continue to eat excessively and therefore may derive no benefit.

A certain degree of tachycardia, hypertension and elevation of the metabolic rate for several hours are known to follow administration of single large doses of amphetamine.[23] Although these undesirable effects may occur after large isolated doses, the hazard is probably less than appears at first glance. First, such cardiovascular effects of these sympathomimetic drugs tend to become lessened with continued administration.[24] Second, relatively small doses which would cause minimal circulatory effects should be adequate to "take the edge" from the appetite. In view of the adverse effects on the cardiovascular system, it would seem doubtful wisdom to increase the dose if customary amounts fail to alter eating habits, since the circulatory system of the obese person is already laboring under an increased strain.[25] The dose of racemic amphetamine sulfate used by Harris, Ivy and Searle[22] was 10 to 15 mg. three times a day, while the dose of the dextrorotatory form was half that. These amounts probably should be regarded as maximal, particularly since Albrecht[26] found doses of 5 mg. of racemic amphetamine sulfate to be effective.

Most physicians do not believe it wise to prescribe such medicines without dietary instruction because the patient, anxious to lose weight, may select a diet inade-

19. Boothby and Sandiford.[32] Rynearson and Gastineau.[18]

20. Newburgh.[2] Berkman, J. M.; Weir, J. F., and Kepler, E. J.: Clinical Observations on Starvation Edema, Serum Protein, and the Effect of Forced Feeding in Anorexia Nervosa, Gastroenterology **9**: 357-390 (Oct.) 1947.

21. Footnote 6. Weiss, E., and English, O. S.: Psychosomatic Medicine: The Clinical Application of Psychopathology to General Medical Problems, Philadelphia, W. B. Saunders Company, 1943, pp. 233-238 and 335-349.

22. Harris, S. C.; Ivy, A. C., and Searle, L.: The Mechanism of Amphetamine-Induced Loss of Weight: A Consideration of the Theory of Hunger and Appetite, J. A. M. A. **134**: 1468-1475 (Aug. 23) 1947.

23. Beyer, K. H.: The Effect of Benzedrine Sulfate (Beta-Phenylisopropylamine) on Metabolism and the Cardiovascular System in Man, J. Pharmacol. & Exper. Therap. **66**: 318-325 (July) 1939.

24. Bram, I.: Therapeutic Hyperthyroidism, Internat. Clin. **1**: 48-61 (March) 1937.

25. Evans, F. A.: Obesity, in Duncan, G. G.: Diseases of Metabolism: Detailed Methods of Diagnosis and Treatment; a Text for the Practitioner, Philadelphia, W. B. Saunders Company, 1942, chap. 10, pp. 513-591.

26. Albrecht, F. K.: The Use of Benzedrine Sulfate in Obesity, Ann. Int. Med. **21**: 983-989 (Dec.) 1944.

quate in such essentials as protein or calcium, or he may rely on the drug and continue to eat freely.

We rarely find it necessary to use such drugs because appetite usually diminishes in the first week of dietary restriction, and we avoid their use because the prescribing of any drug removes the emphasis from diet. We do not wish to give the impression of opposition to these drugs but desire to reemphasize the paramount importance of diet in the therapy of obesity.

Early in the study of obesity it was erroneously assumed that hypothyroidism was a frequent cause of overweight. From this hypothesis it was a logical step to prescribe desiccated thyroid as replacement therapy. But since hypothyroidism has not been shown to be causally related to obesity, this justification for the use of thyroid has been removed.

Some practitioners have even used large doses of thyroid to create a state of hyperthyroidism, but in consideration of the dangerously toxic effects of this substance on the heart,[27] such a practice is not advised.

In short, we do not advise the use of thyroid in the treatment of obesity. Small doses seem to be inactivated,[28] while larger doses exert a direct toxic action on a heart[27] that is already burdened by the stresses imposed by obesity.[25]

Exercise has been demonstrated to be an inefficient means of disposing of an excessive intake of energy.[2] Newburger has estimated that a patient must walk 36 miles (58 kilometers) to rid himself of 1 pound (0.5 Kg.) of adipose tissue. Exercises, massage and local applications of heat have no effect on local deposits of fat.[29] Diuretics and heat therapy designed to increase perspiration may give both the physician and the patient a false sense of achievement by causing the excretion of a few pounds of water. Laxatives and colonic irrigations have not been shown to be effective in diminishing the absorption of food and are of no apparent benefit. A variety of other medications, such as atropine, digitalis, various endocrine preparations, both salts and glucose, has been used in obesity with no proved benefit. Dinitrophenol is no longer used because of its toxicity.

The only important adjuvant to diet in the correction of leanness is rest. Rest diminishes output of energy, allowing the increased intake of food to be retained in the form of body tissue. Rest also often may be employed to aid the tense anorexic patient to eat more freely. Vitamin deficiencies are unusual in association with the ordinary leanness seen in this country, and there is no convincing evidence of a strong appetite-stimulating action of any of the vitamins. For this reason it is not necessary to prescribe supplementary vitamins for the underweight person unless there is a history or clinical evidence of a deficiency. A well planned diet contains all necessary vitamins (table 2). Adding a multivitamin preparation can do no harm, however.

Insulin is a strong stimulant to the appetite when given in amounts sufficient to cause hypoglycemic symptoms, but benefits from such a practice scarcely justify the means. Doses of insulin insufficient to cause hypoglycemic symptoms have not been shown to stimulate the appetite[30] except by the device of suggestion or the threat "now you've got to eat or go into insulin shock."[31] For these reasons we rarely employ insulin as a stimulant to the appetite.

27. Rasmussen, H.: Influence of the Thyroid Hormone on Heart and Circulation, Acta med. Scandinav. (supp.) **115**: 1-202, 1941.
28. Winkler, A. W.; Lavieties, P. H.; Robbins, C. L., and Man, E. B.: Tolerance to Oral Thyroid and Reaction to Intravenous Thyroxine in Subjects Without Myxedema, J. Clin. Investigation **22**: 535-544 (July) 1943.
29. Short, J. J., and De Paul, J.: An Attempt to Mobilize Lipoids from Storage Depots by Deep Massage and Increased Tissue Temperatures, J. Lab. & Clin. Med. **24**: 395-397 (Jan.) 1939.

SUMMARY

Overweight is a serious menace because it appears to increase the incidence of many degenerative diseases. A reduction program is the most important weapon for combating such diseases. Underweight is reported to increase the susceptibility to tuberculosis but moderate underweight is a desirable state in the person past 40 years of age.

The cause of obesity and leanness is a disproportion between caloric intake and caloric requirement. The therapy of obesity or leanness consists of the correction of this disproportion by means of diet.

Administration of amphetamine in appropriate cases may occasionally be a useful adjuvant to dietotherapy, while psychotherapy is often of greatest importance in the case of underweight or overweight persons.

Diuretics, atropine, digitalis, desiccated thyroid and various endocrine preparations all accomplish little in reduction programs. Massage and exercises are ineffective in removing localized deposits of fat. Exercise is an inefficient means of disposing of excessive intake of energy. Insulin is impractical and vitamins ordinarily are ineffective in stimulating the appetite of lean persons.

The diagnostic terms "Simmonds' disease" and "Fröhlich's syndrome" (adiposogenital dystrophy) have been widely used, but their use is rarely justified. Dercum's disease (adiposis dolorosa) has not been demonstrated to be an entity.

Clinical Notes, Suggestions and New Instruments

DELAYED BRACHIAL PLEXUS PALSY DUE TO UNUNITED FRACTURE OF THE CLAVICLE

Report of a Case

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The discovery of the syndrome of the ruptured cervical disk has greatly accentuated interest in arm and shoulder pain. Arthritis, neuritis, cervical rib, aneurysm, trauma and the involvement of the brachial plexus by benign or malignant tumors have long been familiar. Much has been written about scalenus anticus syndrome. The following case is unusual because of the symptoms which developed several years subsequent to the injury and nonunion of a fractured clavicle.

REPORT OF A CASE

J. G., a 46 year old white veteran of World War II, was admitted to the Albany Hospital with the chief complaint of weakness and numbness of the right hand. Ten years previously he had sustained a fracture of the right clavicle. After several days of procrastination he consulted a physician, who bandaged his arm tightly to his side with the elbow flexed. A lump per-

30. Maclagan, N. F.: The Role of Appetite in the Control of Body Weight, J. Physiol. **90**: 385-394 (Sept.) 1937.
31. Freyberg, R. H.: A Study of the Value of Insulin in Undernutrition, Am. J. M. Sc. **190**: 28-42 (July) 1935.

From the Department of Neurosurgery, Albany Medical College, Albany, N. Y.

sisted at the site of fracture but was not painful and did not in any way interfere with his work as a laborer. Three years before admission, while serving overseas in the Army, he noted that his entire right arm became numb or felt "asleep" whenever he carried a pack on long hikes. As soon as the pack was removed the arm would again feel normal. He observed no weakness or color changes of the limb at that time. A year later, he first became aware of numbness of the fifth digit of the right hand. During the following year this numbness spread to involve the third and fourth digits as well as the corresponding volar and dorsal surfaces of the hand. There was no change in the intensity of the sensory disturbance. Six months prior to admission he experienced weakness of the right hand, which steadily increased. He found difficulty in opposing the thumb to the fifth finger, in holding a pencil and in the performance of finer movements; it became necessary for him to change from a straight edge to a safety razor for shaving. He stated that he had no pain in the hand, forearm, arm, shoulder or neck. Atrophy of the interosseus muscles was observed two months before admission. Past and family histories were noncontributory.

Examination revealed a robust compactly built man of small stature. The blood pressure was 120 systolic and 90 diastolic in both arms. With the arms hanging at the sides, the radial pulse on the right became decidedly reduced in volume and at times imperceptible. With the arms held horizontally, the two radial pulses were equal. The veins, more notably the cephalic, were comparatively distended in the right arm. No fever or color changes were observed. A bony nontender mass was present on the middle third of the right clavicle, almost doubling its size over a distance of 4 or 5 cm. Pressure on this mass produced an abnormal amount of movement and some crepitus. Motions of the neck and shoulder joint were normal. Slight atrophy of the interossei was present in the right hand, especially of the first dorsal. The right grip was definitely weaker than the left, particularly of the third, fourth and fifth fingers. (The patient was right handed.) Hypoesthesia and hypalgesia were present over the usual ulnar distribution on the right. Fasciculations were not observed. The myotatic reflexes were equal and active bilaterally. The results of the remainder of the general physical and neurologic examinations were negative.

Laboratory Data.—Results of routine laboratory studies were all within normal limits. Roentgenographic examination revealed an overriding ununited fracture at the junction of the outer and middle thirds of the right clavicle (fig. 1). On

Fig. 1.—Roentgenogram showing the ununited fracture of the clavicle with excessive callus.

fluoroscopy motion was readily observed on abduction or adduction of the arm. The cervical part of the spine was normal, and no cervical rib was demonstrated.

Operation.—On Dec. 2, 1947, the right clavicle was exposed under general anesthesia. A large glistening callus and a great deal of scar tissue surroumded the old fracture site. Most of the callus surrounded the distal fragment, which was displaced under the proximal fragment. This large mass (fig. 2) pressed directly on the subclavian artery and the lower trunk of the brachial plexus. Both fragments and the callus were resected with the Gigli's saw, thus leaving only the proximal and distal quarters of the clavicle. The wound was closed with interrupted sutures of fine silk without drainage. The postoperative course was uneventful. The sutures were removed on the fourth postoperative day, and the patient was discharged on the fifth day after operation.

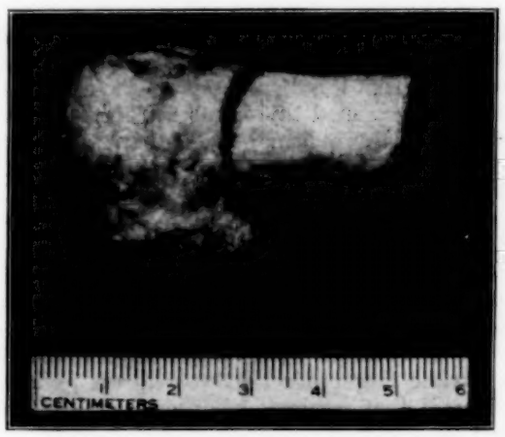


Fig. 2.—Portion of lateral fragment which overlay the brachial plexus.

Postoperative Course.—Both the sensory and motor symptoms disappeared rapidly and at the time of reporting (seven months later) were hardly discernible. Within four weeks he returned to heavy labor and apparently suffered little or no inconvenience attributable to the resection of the midportion of his clavicle. The radial pulse was palpable with the arm at the side, and the arm veins were no longer distended.

COMMENT

While ununited fractures of the clavicle are generally considered unusual, we have been unable to find a satisfactory statistical study of their incidence. They are commonest at the juncture of the middle and outer thirds. Symptoms of brachial plexus involvement occurred in 6 of 9 cases reported by Berkheiser,[1] but in only 3 of 20 cases reported by Ghormley and his colleagues.[2] Shelden [3] made similar observations. Little stress was made in these reports of the time interval between the injury and onset of brachial plexus symptoms.

The costoclavicular space which, under normal conditions, is more than adequate to accommodate the brachial plexus and subclavian vessels, is seriously impinged on in ununited fractures by the inward and downward displacement of the proximal end of the distal fragment. When this space is further encroached on by the formation of callus, the structures passing through it are compressed. These factors plus the motion in the false joint produced are responsible for the symptoms which occur. In the case reported herein the long oblique distal fragment and its callus extended downward and medially and underrode the medial fragment when the arm was adducted; this probably accounted for the obliteration of the radial pulse in arm at side posture and its reappearance when the arm was abducted.

Subperiosteal resection of the middle third of the clavicle did not result in significantly impaired function, but produced immediate and permanent relief of symptoms.

SUMMARY

An instance of delayed palsy of the brachial plexus and compression of the subclavian vessels by an ununited fracture of the middle part of the clavicle is reported. Rapid relief of symptoms followed resection of the two medial quarters of the bone.

1. Berkheiser, E. J.: Old Ununited Clavicular Fractures in the Adult, Surg., Gynec. & Obst. **64**: 1064 (June) 1937.
2. Ghormley, R. K.; Black, J. R., and Cherry, J. H.: Ununited Fractures of the Clavicle, Am. J. Surg. **51**: 343 (Feb.) 1941.
3. Shelden, C. H.: Personal communication to the authors, February 1948.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The Council has authorized publication of the following report.

AUSTIN SMITH, M.D., *Secretary.*

CANCER AND THE NEED FOR FACTS

In this age of enlightened scientific advancement it seems incredible that the known facts concerning cancer continue to be distorted in the minds of the public and the medical profession through the sale of useless or doubtful remedies for the treatment of this disease. Some such remedies are outright frauds, while others are in need of further investigation but, nevertheless, are offered for clinical application. Unfortunately, some of the more promising remedies occasionally are publicized prematurely and much confusion and some harm occur.

At the present time the established treatment for cancer consists of the judicious use of surgery and irradiation, either with gamma rays or roentgen rays. Many promising discoveries, such as the effect of substances with estrogenic activity on certain types of cancer, have been made which offer hope that some day drug therapy may become an important treatment measure, but until further research work has been completed, the use of drugs must, for all practical purposes, be regarded as still in the experimental stages. Furthermore, the injection of radioactive elements offers promise of an improved method for irradiation of certain forms of cancer, but it, too, requires extensive study before a therapeutic evaluation can be made finally. Thus a drug cure for cancer has not been found, and, until scientific research can provide a successful agent or method capable of preventing death from the disease, emphasis must continue to be placed on the early detection and complete eradication of the disease at its outset.

I. FRAUDS AND FABLES

Of all the nostrums fraudulently promoted as remedies or "cures" none is more reprehensible than those falsely claimed to be effective for the treatment of cancer. The variety of preparations offered as remedies for cancer bears eloquent testimony of the failure of such products to provide a "cure," or even a sound method of treatment for the disease; nevertheless, the sale of quack remedies for cancer continues. Such nonsense is due in part, to the unscrupulous promoters who are persistent in their false appeals to the uninformed, and in part to those sufferers who are easily persuaded to forego scientific examination and treatment for more magical shortcuts. A less obvious but equally guilty minority, however, is constituted by a few presumably qualified physicians who lend unintentional support to worthless remedies by prescribing or administering such products with the wishful notion that they may provide some benefit in the treatment of what is known to be incurable cancer. The cancer charlatans thus prey not only on persons without cancer who fear it and on patients with the disease who have not sought competent medical advice, but also on the physician who is ever hopeful that a real cure for the disease has been found.

"COLLODAURUM"

Perhaps one of the most insidious of all the cancer nostrums is the so-called "palliative" promoted with insinuations that it is of some benefit and may possibly cure. "Collodaurum," a 0.02 per cent preparation of colloidal gold ("$^{2}/_{1000}$ grain in each ten minums"), promoted by the Kahlenberg Laboratories, Sarasota, Fla., belongs in this class of cancer nostrums. Advertising sent to physicians cleverly emphasizes the use of this product as a palliative in the treatment of inoperable and postoperative carcinoma in the manner for which roentgen or radium treatment is scientifically used to destroy or discourage the spread of certain malignant tumors. The unwary physician is further tempted by the statement, "A small number of so-called hopeless cases are cured and remain cured." This is, of course, pure balderdash. Ten years ago the Council exposed the character of the claims made for this product and concluded that it was useless in the treatment of cancer.[1] Although it was then pointed out that there is no scientific proof that gold is appreciably absorbed when given orally, the firm continues to advertise, "administration may be oral, intravenous or both." Then, as now, there existed no sound evidence to demonstrate that colloidal gold or, indeed, gold in any form by any route of administration is of any real benefit for the palliation or cure of cancer, and, since the Council's previous report, nothing has been brought forward to indicate that "collodaurum" is anything more than a placebo to which curative properties are falsely assigned on the basis of uncontrolled clinical impressions. As has been often emphasized, the fluctuation in the clinical condition of many patients with cancer accounts in large part for the benefits attributed to preparations such as "collodaurum."

That this product is not the specific remedy the promoter claims is evident from its history. The record shows that the product was also previously promoted for colloidal gold therapy of arthritis and tuberculosis, though Kahlenberg Laboratories now separately promotes a more concentrated (0.1 per cent) colloidal gold preparation for arthritis under the name "rexarum," with the claim that it is effective orally as well as by injection. This manipulation removes "collodaurum" only slightly from the category of the "cure-all" nostrums promoted for a wide variety of diseases. The firm's claim that "collodaurum" is unlike other gold preparations parallels its statement that the product is "absolutely free of soluble gold salts." This is evidently intended to create the erroneous impression that gold in colloidal form possesses mystic healing qualities and is superior to the soluble salts, such as gold and sodium thiosulfate, N.F. Indeed, the existing evidence for any beneficial effects of chrysotherapy is based on the use of soluble gold salts, the action of which is attributed to the absorption of the injected gold, whereas authorities on chrysotherapy have found that colloidal gold preparations are generally ineffective therapeutically because insoluble colloidal particles are quickly phagocytized and would thus be prevented from being readily absorbed. The Council has not accepted preparations of colloidal gold for any purpose.

1. Collodaurum Not Acceptable for New and Non-Official Remedies, report of the Council on Pharmacy and Chemistry, J. A. M. A. **111**: 531 (Aug. 6) 1938.

"IRIODINE" AND "RADIODINE"

Promoters of other nostrums have also found it expedient to attribute magical properties falsely to the colloidal state of various substances. Prominent among these are the colloidal iodine preparations promoted through a concern lately known as the Iodine Research Institute of Chicago, by a Belgian chemist, Albert Trencavel. One of the products attributed to these promoters is advertised to physicians under the name "iriodine," and to the public as "blue magic iodine," and is claimed to be effective in a variety of conditions, including cancer, by a combination of oral and topical administration. This product is vaguely described as "free iodine in aqueous solution-dispersion suspended by a special process in a live or active colloidal medium to which it is 'harnessed,' insuring its stability." The promoters are also responsible for a product named "radiodine," at one time described as "colloidal iodine sine potassium iodide, for intravenous injection only," and at another time as, "a mild radio-active form of iodine in its pure form. . . ." Apparently the promoters have found it difficult to decide whether or not injected iodine should be in colloidal or radioactive form. Preparations containing iodine in colloidal form are not new, and over the years various pharmaceutical manufacturers have "introduced" such products with fanciful therapeutic claims for their superiority over iodine in noncolloidal form. Likewise other preparations claimed to be "radioactive" have long been credited with unusual healing powers, when as a matter of fact the amount of radioactivity was either imaginary or of the order of that from a radium-coated watch dial. Such obviously worthless remedies should not be confused with the truly radioactive elements, such as I^{131}, which is under current scientific investigation for the treatment of carcinoma of the thyroid and toxic goiter.

CAUSTIC PASTES

A report on cancer frauds would not be complete without reference to the topically applied escharotic preparations promoted for the caustic removal of superficial tumors by what has been described as the method of "chemosurgery." The type of product usually employed is merely a caustic paste containing arsenic, zinc or other escharotics, or some combination of such substances, used either for complete removal or delineation of external cancer as a preparation for surgical removal. The promoters of "collodaurum" mentioned herein also market a preparation of bichloracetic acid which belongs in this class. THE JOURNAL has previously pointed to evidence showing that the promiscuous use of such preparations accomplishes nothing that cannot be equally well, or better, done by irradiation or surgical treatment.[2] THE JOURNAL's brief review of the results of this type of treatment received by patients at Dr. Nichols' Sanatorium, Savannah, Mo., has served to emphasize the dangers involving the use of caustic pastes; the treatment produces unnecessary disfigurement in patients without true cancer, and the locally applied paste does not prevent the advance of extensive or deep-seated superficial tumors without surgical treatment or radiation therapy.

Apparently another outlet for this form of cancer "cure" is the Hoxsey Cancer Clinic, Dallas, Texas, which has been claimed to use an arsenical paste for treatment. The record of its promoter, Harry M. Hoxsey, has been reviewed by THE JOURNAL.[3] Recent information[4] indicates that the activities of this promoter extend into Mexico and that the treatment also includes the internal administration of a mixture of potassium iodide, cascara sagrada and some other "secret" ingredient.

The most serious aspect of the treatment for cancer with escharotic pastes and, indeed, all cancer nostrums, is that some patients with real cancer are deprived of scientific examination at a time when the spread of the disease and death might be prevented. Cancer that is evident on the body surface in its early stages usually arises from the skin, whereas most internal cancer rarely involves superficial structures such as the skin except as the result of widespread extenson of the disease from internal organs or glands. It is thus utterly foolish to expect a "cure" by the application of caustic pastes to the superficial manifestations of a tumor that may involve remote internal tissues. The nostrum vendors are, of course, more concerned with the fee for their dubious services or products than with accurate and complete diagnosis, since they lack either the scientific training or the inclination to help the unfortunate victims of their advertising. Many of the promoters have no qualifications or license to practice medicine, a situation that some of them have tried to meet by alining themselves with unethical licensed practitioners who are equally unfit or disinclined properly to diagnose and treat cancer.

The need of microscopic control for the proper use of caustic paste to fix tumor tissue preparatory to successful surgical removal of superficial cancer has been recently reported.[5] This approach differs, however, as it involves a scientific approach to the concurrent use of a caustic paste; it is not intended as a curative agent.

"SYNTHETIC ANTITOXINS"

Another well known abuse in the annals of cancer quackery is the use of the so-called Koch cancer treatment, which is neither an effective treatment nor one restricted always to cancer. Since 1920, a William F. Koch, M.D., of Detroit has promoted a series of preparations under one or more names or in various forms, distributed by Koch Laboratories of the same city; he calls these preparations "Koch's synthetic antitoxins." The products have been foisted on the medical profession and the public in what the promoter apparently claims to be three different forms, represented by the following designations: "glyoxylide," "1:4 benzoquinone" or "BQ" and "malonide" or malonide ketone solution." The promoter has never satisfactorily explained the nature of these preparations, if, indeed, he himself has any knowledge of their composition, so that it is impossible to determine with certainty whether the variously identified products are actually different or are merely different names or different forms of the same nostrum. THE JOURNAL and the Bureau of Investigation of the American Medical Association have repeatedly condemned the promotion of these products.[6] The records of the Association indicate that

2. The Treatment of Tumors with Escharotics, editorial, J. A. M. A. **122**: 949 (July 31) 1943.

3. Hoxsey-Cancer Charlatan, editorial, J. A. M. A. **133**: 774-775 (March 15) 1947.

4. Hoxsey in Mexico, report of Bureau of Investigation, J. A. M. A. **137**: 1242 (July 31) 1948.

5. Mohs, F. E.: Chemosurgical Treatment of Cancer of the Skin: A Microscopically Controlled Method of Excision, J. A. M. A. **138**: 564-569 (Oct. 23) 1948.

6. The "Glyoxylide" of William F. Koch, report of Bureau of Investigation, J. A. M. A. **107**: 519 (Aug. 15) 1936. The "Essence" of Sulfonamide Quackery, editorial, J. A. M. A. **118**: 734-735 (Feb. 28) 1942.

7. Omitted.

within less than a year of his graduation from a Detroit medical college in 1918, the promoter announced that he "had developed a real specific cure for cancer," then described only as "Koch's synthetic anti-toxin" and claimed to be a differential poison that would destroy the "cancer germ" without injuring the host. Koch advanced the theory that cancer was caused by a micro-organism resembling the spirochete of syphilis and exploited his nostrum as a cancer "cure" for several years before extending claims to other diseases. "Glyoxylide," appearing on the scene in 1936, was claimed to have "demonstrated its efficiency not only in the treatment of cancer, but also in such infections as tuberculosis, psoriasis, leprosy, poliomyelitis and syphilis," despite the fact that an investigation of the results of his "cure" for cancer indicated that it was of no value and that patients with the disease receiving the treatment had subsequently died. Koch vaguely represents "glyoxylide" to be a compound resembling an unsaturated diketone and claims that this and his other so-called synthetic antitoxins act as catalysts to encourage the destruction of toxins that are held to be responsible for the growth of cancer tissue. There is, of course, no scientific basis for this theory of cancer, but it illustrates the obvious fact that Dr. Koch has either changed his mind regarding his theory of the cause of cancer or purposely alters his pseudoscientific jargon from time to time to confound the unscientific practitioner and layman alike.

Koch continues to play on the credulity of the unwary physician and the human victims of cancer and other diseases with testimonials of false cures or benefits both in this country and in Canada, where representatives for his nostrums also operate. Since 1940 his quackery has also extended to the field of veterinary medicine, with claims for his nostrum in the treatment of mastitis and other diseases in cattle. It has been implied that the value of "glyoxylide" for such purpose has been confirmed by successful experiments conducted under the auspices of the provincial department of agriculture of British Columbia. An exposé of this additional falderal recently appeared in THE JOURNAL.[8] It should be obvious that Koch's treatment is worthless as a remedy for any disease. Koch's "treatment" is known to be prescribed chiefly by irregular practitioners who are not doctors of medicine and who extend his fraudulent operations by their dubious support.

HETT "CANCER SERUM"

In a pamphlet bearing the title "The Hett Cancer Treatment and Research Foundation" and listing an address in Windsor, Ontario, Canada, a Dr. John Emil Hett, who has had other Canadian addresses, publicizes to physicians of this country the use of a serum alleged to cure cancer. The exponents of this "cure" also claim to detect accurately the presence and degree of internal cancer from a drop of the patient's blood that is merely allowed to dry on a glass slide which is furnished for forwarding the specimen by mail. It is modestly stated further, "The cure of cancer has been discovered (namely by Dr. Hett) as far back as 1931," and "Dr. Hett has not been able to bring his discoveries to the notice of the profession through the columns of a medical journal because editors decline to publish a paper on the subject unless details are given about the nature and method of preparation of his serum." The explanation is said to be made clear in his book, "Cancer, Its Causes, Prevention and New Treatment," which, apparently, will be sent anywhere for $3.50. Several flimsy excuses are offered in defense of the secrecy of the formula for the serum, not the least of which is the claim that a physician needs special training to administer the serum safely. As an example of the danger of administration by inexperienced hands, it is stated in the pamphlet, ". . . there were cases of fatalities from the use of ensol, where the agent had been prepared elsewhere than in the inventor's laboratories." The former history of "ensol," an extract of cancer tissue for injection, and its tetanus-contaminated companion, "rx," has been previously reported in THE JOURNAL.[9] The pamphlet offers as another excuse for secrecy by Dr. Hett the point that members of the Royal Commission appointed in 1937 by the Legislature of Ontario to investigate all remedies used in the treatment of cancer apart from surgery, roentgen rays and radium were sworn to secrecy as to the nature of the formulas submitted to that agency for examination. It is further indicated in the pamphlet that the Commission was at first "ultraconservative" toward Dr. Hett's treatment, but that it ultimately admitted the cures attributed to him. The complaint is offered that the findings of the Commission reported to the Legislature in 1945 were not made public until 1946, after considerable pressure on the part of Dr. Hett and his associate.

The secrecy surrounding the serum "cure" of Dr. Hett can only be condemned as outright chicanery. If, indeed, a cure for cancer had existed since 1931 as claimed by Dr. Hett, then the responsibility for all deaths from the disease since that time could be ascribed to his failure to make known his discovery to all other physicians. Obviously, the real reason for secrecy lies in the fact that Dr. Hett has no cure.

"AF-2"

More recently, publicity concerning another alleged "serum" cure for cancer, known as formula "AF-2," has come from Italy by way of an American-Italian language newspaper containing an item regarding the Italian inventor of the preparation, a Prof. Francesco Guarnieri. The manufacture and distribution of the preparation are attributed to an Institute Guarnieri of Rome, Italy. One American newspaper makes reference to the product as a "serum" derived from the livers of "cancer-resisting" animals, such as goats, sheep and pigs, and indicates that although Guarnieri claims to have cured or arrested many cases (of cancer) by free distribution of the preparation, he is not in good repute with Italian doctors and specialists. Despite failure of the government medical commission of Italy to approve the sale of the formula in that country, the inventor has apparently condoned the martyrdom accorded him in the Italian press, publicizing the popular clamor that the product be given official recognition. Another source of information indicates that Professor Guarnieri is not a physician and that he has been unwilling to document his cases of claimed cures or to give details of the composition of his material. It is understood that tests of "AF-2" are being conducted in Italy and that the results so far are unfavorable. An American veterinary authority has offered the pointed

8. Senator Langer Abuses Franking Privilege by Circulation of Propaganda for Koch's Cancer Quackery, Report of Bureau of Investigation, J. A. M. A. **137**: 1333 (Aug. 7) 1948.

9. The Connell Cancer Cure, editorial, J. A. M. A. **105**: 1122 (Oct. 5) 1935; Special Article: Eleven Deaths From a Cancer Treatment, J. A. M. A. **110**: 1183-1185 (April 9) 1938; Ensol in the News, editorial, J. A. M. A. **116**: 2774 (June 21) 1941.

comment that livestock ordinarily sold for slaughter, such as swine, rarely live long enough for any one to state with certainty that such animals are free of cancer. This would appear to shed considerable doubt on the theoretic basis for the animal origin of "AF-2." Furthermore, even if certain animals are "cancer-resisting," there is no scientific proof that an extract of their livers contains any substance capable of curing what is known as cancer in human beings.

DIETARY "TREATMENTS"

Although reference to the influence of the diet is frequently included by promoters of cancer nostrums as a part of some unproved theory of the disease, perhaps the most notorious adherents to the false notion that the diet has any specific influence on the origin or progress of cancer are the food faddists. One such faddist, Johanna Brandt, author of a book entitled "The Grape Cure," represented that the eating of grapes alone would cure cancer and practically all other human diseases. The book was last distributed by a Jessie F. Springer, operating as the Harmony Centre, Inc., of New York. The organization capitalized on the "grape cure" propaganda by advertising that it had grape juices and concentrates for sale. The distributor has been cited in a cease and desist order issued by the Federal Trade Commission that the misrepresentations contained in the book be discontinued.[10] The United States Post Office Department subsequently issued a Fraud Order (No. 36728, Feb. 27, 1948) against the distributor for use of the mails to advertise and circularize various "health books" advancing fraudulent claims for dietary cures of such conditions as high blood pressure, faulty eye sight and gray hair.

Another "treatment" for cancer involving dietary restrictions is that of a Dr. Max B. Gerson of New York City, who has been reported by THE JOURNAL[11] to be using a dietary and salt-controlled method that is said to be supported by a Robinson Foundation for cancer research located at 14 Wall Street, New York. THE JOURNAL pointed out that Gerson had been previously connected with a diet method falsely proposed as an advance in the treatment of tuberculosis and that the research "foundation" for cancer was actually financed by two business enterprises, the Hatfield Wire and Cable Company and Wellin Davit and Boat Company, both of Amboy, N. J., by incorporation under a provision of the revenue code for educational institutions to exempt the organization from federal taxes. The detailed "diet" proposed by Gerson consisted essentially in restriction of all foods other than uncanned fresh fruits and vegetables and oatmeal and forbade the use of aluminum utensils and pressure cookers in preparation of food and the use of such items as salt, spices, sodium bicarbonate, alcohol and tobacco. His "treatment" also included the internal administration of iodine, liver, iron and various vitamins (apparently to supplement a diet lacking in essential proteins and fat) and the use of an enema formula to produce copious daily bowel movements. The diet was said to make the body highly hypersensitive, so that ordinary anesthesia might be fatal, a conjecture that is wholly unfounded and apparently designed to appeal to the cancer victim already fearful of a surgical operation which might offer the only effective means for eradication of the disease. However, there is no scientific evidence whatsoever to indicate that modifications in the dietary intake of food or other nutritional essentials are of any specific value in the control of cancer.

An equally vague form of alleged cancer therapy that may be included in this category is that attributed to Emanuel Revici, said to be a refugee physician from Rumania. The history of the "treatment" promoted by this person begins in Mexico City, where patients from the United States were attracted by claims of a new method. An investigation by several American physicians previously reported in THE JOURNAL[12] indicated that the modern building used for hospitalization of patients was without adequate laboratory or other scientific facilities, that no satisfactory clinical record of patients was kept and that the so-called treatment, based on unproved theories, consisted of the parenteral and oral administration of various glandular and tissue brews digested in various ways. The investigators warned that little benefit could be expected by cancer patients going to Mexico City for this "treatment." Subsequently, Revici spent a few months at the University of Chicago, where he was given an opportunity to demonstrate his method, with the result that in 52 patients with cancer no favorable effects could be attributed to this form of therapy. Present records indicate that Revici has been in Brooklyn since 1946 at what is called the "Institute of Applied Biology"; his "treatment" consists essentially of the administration of fatty acids by mouth and by injection under the skin, to induce a gain in weight. While it is possible to credit fatty acids with the ability to produce a gain in weight in patients with cancer, as enforced food intake would do, there is no scientific evidence to indicate that this will alter the ultimate course of the disease.

"ORGONE ACCUMULATOR"

Among the various weird devices at one time or another offered for the "treatment" of cancer and other diseases should be mentioned what has been described as the "orgone accumulator" and "orgonoscope" in a book entitled "The Discovery of the Orgone. Volume II: The Cancer Biopathy," by Wilhelm Reich, M.D., translated by Theodore P. Wolfe, M.D., published by the Orgone Institute Press of New York. The "orgone accumulator" is apparently a cabinet in which the patient sits and supposedly accumulates "orgone," a highly imaginary sexual factor supposedly found everywhere in life, but somehow not effective unless concentrated about the patient. The pseudo-freudian confusion on which this illusory concept of "treatment" for cancer is based can be best appreciated by the following comment concerning the book:

> The neatness of its format and the unctuous effect of its pseudo-scientific vocabulary are likely to mislead some of the readers of this book. It begins with a baffling description of units called "bions"; the noun gives rise to derivatives like the phrase "bion water" and the adjective "bionous." The earth bion water contains something called "orgone," which has to do with orgasms. "OP" in this vocabulary means not "osmotic pressure" but "organotic potency"; related terms are "orgone accumulator" (illustrated on page 100), "orgonoscope" (illustrated on page 89), "orgonomy," "orgonotically," "anorgonia," and even "orgprotozoa." The blueness of the sky is ascribed to orgone. Sooner or later the author sees blueness practically everywhere, even in red corpuscles.

10. Abstracts of Certain Federal Trade Commission Releases: Grape Cure For Cancer, report of Bureau of Investigation, J. A. M. A. **116:** 2525 (May 31) 1941.

11. Gerson's Cancer Treatment, editorial, J. A. M. A. **132:** 645-646 (Nov. 16) 1946.

12. Correspondence: A Mexican Treatment for Cancer—A Warning, J. A. M. A. **128:** 1186 (Aug. 18) 1945.

The thesis of the book is that cancer is somehow related to the behavior of orgone, and (page 350) that "a local cancer affection is a result of a disturbed sex-economy of the organism. Consequently, a radical fight against cancer requires a radical change in the sexual hygiene of the total population." To reach this conclusion, the author, without exciting any protest from the translator, weaves a web of argument in which the undeniable is most amazingly entangled with the unfounded and the absurd. As a defense of the author's use of the "orgone accumulator," this book fails of its purpose.

Inquiries received concerning the "institute" publishing this nonsense indicate that the "theory" is promoted as a method for curing cancer. There is, of course, no evidence to indicate that this is anything more than another fraud that has been foisted on the public and the medical profession.

OTHER CLAIMED CURES

The files of the Bureau of Investigation and of the Therapeutic Trials Committee of the American Medical Association contain many letters from persons purporting to have a formula for a salve or other type of medication believed to be of benefit as a "remedy" for cancer. Many such persons are sincere but misguided in their efforts to bring such medicaments to the attention of the medical profession, basing their faith in a particular formula handed down within the family or on the testimony of life-long friends who were thought to be benefited, when actually cancer had not been proved to be the cause of their ailment. The lack of scientific knowledge makes it difficult for these persons to disbelieve the apparent "cures" brought to their attention by other equally uninformed persons. Others are similarly deluded by unscientific evidence of "cures," but for selfish reasons do not want to reveal the nature of their claimed remedy, even though they profess to be motivated by altruistic desires. These persons, of course, differ from the charlatan only by their lack of knowledge or ability to set up a scheme of promotion on a commercial scale and are thus more to be pitied than condemned. Most of what may be called these "home remedies" for cancer are extracts of plants, herbs or other galenicals to which little if any therapeutic action can be assigned.

In answer to the many letters from persons sincere in the belief that they have a curative remedy for cancer who propose that it be investigated by the American Medical Association, the Bureau of Investigation has replied that before such remedies could be properly evaluated the following information must be furnished: (1) full information regarding the composition; if it is composed of more than one substance, the full name and amount of each substance; (2) the names and addresses of at least twenty-five persons who are alleged to have been cured by the use of the treatment, and (3) the names and addresses of physicians who had the opportunity of diagnosing the condition in these twenty-five persons before they were treated.

In every instance the request for such information has not been met.

II. UNESTABLISHED REMEDIES

Finally, it should be added that there are under investigation various methods of treatment proposed for cancer that cannot be classified as frauds, but which are based on unestablished theories of questionable promise. Such remedies sometimes receive so much early and enthusiastic publicity in the press that the relatives of cancer victims and the victims themselves are falsely encouraged to believe that a complete cure for the disease is at last available. Sometimes such publicity occurs through no fault of the investigators and is not necessarily an indication that commercial promotion is contemplated or that the effort to find a treatment of real value is not sincere. Often, also, the considerable time required for scientific evaluation of what is reported to be a promising agent makes it impossible to estimate the status of the proposed treatment until other scientists have repeated experiments and confirmed the report. Because so many promised "cures" have failed to be of any real value for the treatment of cancer and of other serious diseases, it is only natural for the honest investigator to have a healthy skepticism toward new claims for such a treatment.

"KR SERUM"

"KR serum" (so designated with the initials of the surnames of the two original Russian investigators, N. G. Klyueva and G. I. Roskin), which is made from the serum of mice or from cultures infected with certain strains of a protozoan, Trypanosoma cruzi, the cause of a serious tropical illness called Chagas' disease, has been claimed by Russian investigators to contain an "endotoxin" which when injected subcutaneously into mice with certain forms of cancer will cause reduction of the tumors in those animals. THE JOURNAL[13] has called attention to the lack of adequate information by which to judge the effectiveness of "KR serum" and has reviewed[14] a subsequent report issued by two Philadelphia investigators seeking to confirm the results of the Russian observers. THE JOURNAL points out that the observations of the American researchers did not confirm the Russian claims and states, "From these negative results the Philadelphia investigators conclude that the alleged 'endotoxin' of T. cruzi does not at present hold out much promise in practical clinical therapy."

"AUTOVACCINATION"

THE JOURNAL[13] also called attention to the need for authoritative scientific information regarding the use of a method of autoinoculation of human cancer reported by another Russian observer, Krasheninnikov, based on previous observations by Besredka that a certain degree of immunity sometimes developed to intradermal transplants of certain cancerous tumors in animals. Although it was reported that this method as used by the Russian observer had resolved the tumors in 2 patients with stomach cancer treated with transplants of the patient's own tumor into the skin of the abdomen, an American physician has indicated that such results are open to question.[15] The latter pointed out that his own previous observations made with Besredka on the use of the method in human beings gave unfavorable results and that the transplants led only to the establishment of another tumor and thus spread the disease.

Other observers[16] have previously reported regression of human skin cancer in a small preliminary series of patients following intradermal injections of tissue

13. Current Comment: Cancer Treatments from Russia, J. A. M. A. **133:** 111 (Jan. 11) 1947.
14. Current Comment: Ineffectiveness of Trypanosoma Cruzi Endotoxin (KR) in the Treatment of Mouse Cancers, J. A. M. A. **137:** 1321 (Aug. 7) 1948; Alleged Cancer Biotherapy, editorial, J. A. M. A. **137:** 1604 (Aug. 28) 1948.
15. Correspondence: Cancer Treatment by Autovaccination, J. A. M. A. **133:** 800 (March 15) 1947.
16. Amersbach, J. C.; Walter, E. M., and Sperti, G. S.: Treatment of Basal Cell Epithelioma by Injection of Tissue Extracts: A Preliminary Report, Arch. Dermat. & Syph. **54:** 119-132 (Aug.) 1946.

extracts from human spleen or liver, but have withheld judgment as to the curative value of this form of treatment until patients have been observed for at least five years.

CHYMOTRYPSIN

Another unestablished theory based on the thesis that all cancer is of a trophoblastic nature, such as chorionepithelioma, has been advanced by Krebs and his co-workers.[17] This group has also reported encouraging results from the use of injections of crystalline chymotrypsin, an enzyme of the pancreas, in the treatment of a patient with advanced cancer,[18] although there is lacking adequate proof to connect the theory with the use of the enzyme as a form of treatment for the disease. On the basis of the same theory, another group, Beard and his co-workers,[19] have proposed a test for cancer involving bioassay of chorionic gonadotropin in the urine. This test as an accurate method for the detection of cancer is open to serious question; yet it has been widely publicized in an article appearing in the *Readers' Digest* for August 1947. It has also received other publicity, as the accompanying reproduction of one statement:

CANCER

Is CANCER in any part of your body?
BREAST,LUNG,STOMACH,KIDNEY,LIVER,CHEST,
NECK,THROAT,HEAD,LIMBS, or
INTERNAL ORGANS?
A Labatory URINE-TEST will show.
Labatory Analysis is done by the following Doctors
Howard H. Beard, Ph.D.
Albert B. Katz, Ph.D.
C. M. Wylie, Ph.D.
This new method is less painfull than a Surgeons Knife.
CANCER in the early stage can be cured
with CHYMOTRYPSIN
and shall be administrated by your PHYSICIAN.
Urine-test are by appointment only.
Hours 2 - 3 p. m. Exept Saturday and Sunday.
CANCER — — DIVISION.
OF
MASSACHUSETTS SPEECH CLINIC
16 CENTRAL AVENUE
SUITE 419
LYNN, MASS.

Information received by way of inquiries further indicates that the speech clinic publicizes the test on a commercial basis for a fee of $200 per person. The proponents of the Krebs theory, however, have denied all responsibility for this publicity and renounce the claim that chymotrypsin is a cure, claiming only that chymotrypsin is a "palliative in human cancer." As yet, evidence definitely to establish its value either as a palliative or cure has not been presented. Both the proposed urine test and the method of treatment must for the present be considered highly experimental, and, until proved to be of some definite value in cancer, the publicity given to either procedure is, to say the least, unfortunate.

17. Correspondence: Pathology of the Trophoblast, J. A. M. A. **131**: 1527 (Aug. 31) 1946. Gurchot, C.; Krebs, E. T., Jr., and Krebs, E. T.: Growth of Human Trophoblast In Eye of Rabbit: Its Relationship to the Origin of Cancer, Surg., Gynec. & Obst. **84**: 301-311 (March) 1947.

18. Krebs, E. T.; Krebs, E. T., Jr., and Gurchot, C.: Skeletal Changes Associated with the Use of Crystalline Chymotrypsin in an Apparently Radio-Resistant Growth, M. Rec. **160**: 479 (Aug.) 1947.

19. Beard, H. H.; Halperin, B., and Libert, S. A.: Effect of Intraperitoneal Injection of Malignant Urine Extracts in Normal and Hypophysectomized Rats, Science **105**: 475-477 (May 22) 1947.

The foregoing examples of unestablished remedies for cancer serve to emphasize the false hope that is frequently stimulated by too early and too enthusiastic efforts to publicize the "news" of unproved methods of treatment. The cry of "wolf" once too often could easily create indifference to an announcement of a truly effective remedy for advanced cancer when such a goal is ultimately realized.

CONCLUSION

The Council emphasizes the need for caution in the premature adoption of new theories or use of unproved treatments proposed for cancer and issues this report in condemnation of the numerous fraudulent remedies for the disease and the early publicity of unestablished remedies. When truly improved methods for the treatment of cancer are found, it seems self evident that these will quickly find wide application to all victims of cancer without the advertising used to promote the sale of cancer nostrums.

Council on Physical Medicine

REPORTS OF THE COUNCIL

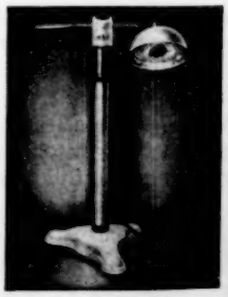
The Council on Physical Medicine has authorized publication of the following reports. HOWARD A. CARTER, *Secretary.*

LIFE LITE THERAPEUTIC LAMP, MODEL H-11, ACCEPTABLE

Manufacturer: Ultra Violet Products, Inc., 5205 Santa Monica Boulevard, Los Angeles 27.

The Life Lite Therapeutic Lamp, Model H-11, is a dual purpose lamp ("two in one") consisting of (1) a source of ultraviolet radiation in the form of a high potential, low pressure "cold quartz" mercury arc lamp and (2) a source of infra-red radiation principally of wavelengths 15,000 to 150,000 angstroms.

These two therapeutic elements are fixed in a hemispherical reflector that is supported on the end of an arm and is free to travel horizontally, rotating about the axis of the arm. This arm is mounted on a substantial base having a vertical telescoping tube that permits adjustment in height ranging from approximately 80 to 150 cm. (32 to 59 inches), measured from the floor to the rim of the reflector, when it is directed downward.



Life Lite Therapeutic Lamp, Model H-11

The weight of the lamp is given as 20 Kg. (43 pounds). The packed weight for domestic shipment is 34 Kg. (75 pounds) and for foreign shipment 43 Kg. (95 pounds). It is designed to operate on 120 volt alternating current. When both the ultraviolet and the infra-red elements are in use, the power drawn amounts to approximately 370 watts.

The Council considered results of mechanical, electrical, radiometric and physiologic tests on this lamp and concluded that mechanically and electrically the device is stable and well constructed, and that there is no danger of electrical shock or thermal burns so long as the parts are unbroken or the unit is not taken apart.

The Council considered further extensive data on: (1) the ultraviolet emitted by this lamp, with power input ranging from 19 to 31 watts (105 to 130 volts); (2) the variation of ultraviolet intensity with distance from the burner, and (3) the variation in intensity along a line perpendicular to the axis of the central beam. The radiometric measurements indicated that approximately 90 per cent of the biologically effective ultraviolet radiation of wavelengths 3,132 angstrom units and shorter

emitted by this lamp is in the wave band at 2,537 and that, at the Council's specified distance of 61 cm. (24 inches) from the plane of the rim of the reflector, with the lamp operating on 120 volts (25 watts), the intensity is close to 150 microwatts per square centimeter. This is about four times the minimum intensity stipulated in the Council's minimum requirements for acceptance. Since this can be calculated to produce a minimal perceptible erythema on the untanned skin of average pigmentation in about four minutes, it is in satisfactory agreement with the physiologic findings in the report.

The 350 watt infra-red element, consisting of a flat disk about 9 cm. (3.6 inches) in diameter and located at the center of the ultraviolet generator, delivered tolerance heat at 12 inches. The infrared heater complies with the Council's requirements.

The Council on Physical Medicine voted to include the Life Lite Therapeutic Lamp, Model H-11, in its list of accepted devices.

WESTERN ELECTRIC 4CA AUDIOMETER ACCEPTABLE

Manufacturer: Western Electric Company, 120 Broadway, New York 5.

The Western Electric 4CA Audiometer is of the phonograph type and is designed to test auditory acuity for numbers by the use of calibrated records available through Western Electric dealers. The instrument incorporates a one stage vacuum tube amplifier which is capable of activating as many as forty telephone receivers. Thus the instrument is of the type adaptable to group screening for the purpose of isolating persons with losses of hearing. It has the following accessories:

4CA receiver tray with 10 receivers
4CA receiver tray case for holding 3 trays of receivers
KS-10087 test record for 2 digit numbers
KS-10075 calibration record
Bagshaw's Brilliantone needles
KS-677650-1 hearing test sheets
KS-677651-1 master sheets for checking

The instrument weighs 10.4 Kg. (23 pounds); its shipping weight is 13.2 Kg. (29 pounds). The dimensions of the case are 22 by 37 by 66 mm. (8½ by 14½ by 26 inches).

The 4CA Audiometer uses one, two, three or four trays of ten magnetic receivers with head bands and receivers. One tray is carried in the audiometer case. Additional trays are carried in a matching receiver tray case.

When in its carrying case the instrument is easily transportable and possesses a desirable degree of ruggedness. The phonograph motor is spring driven to make it independent of local power supply or availability of convenient electrical outlets. There is electronic amplification, and a meter built right into the instrument which serves the double purpose of allowing battery voltages to be measured and of allowing the amplifier output to be set at the level requisite for standardized testing. Dry cells of substantial size which will last a normal school year furnish the A and B supply for the amplifier. In order to replace them it is necessary to unscrew the turntable mounting panel. Stopping the turntable automatically turns off the amplifier; this feature minimizes the danger of exhausting the batteries when tests are not actually being given.

The receiver trays are connected in series and the output of individual receiver is the same, regardless of the number of trays used.

Each subject wears a single headphone. The receiver unit is easily removable from its plastic shell in the event of need of replacement.

An instruction sheet is mounted in plastic in the top of the audiometer case. A circuit diagram is included under the baseplate for the phonograph.

Two records are supplied with the instrument. The first record is used to calibrate the instrument and to check the condition of the individual receivers. It presents a continuous warbling note.

The second record is designed especially for use with Western Electric 4 type audiometers. It presents numbers at descending intensity levels (with two digits to a level and 3 decibels as the gap between levels). The record covers the range of hearing (in sensation units as compared with normal threshold for numbers) from plus 30 to minus 3 decibels when played on a properly calibrated instrument.

The 4CA was designed to permit school systems now using the 4A and 4C Audiometers, in need of additional equipment, to purchase a 4CA Audiometer with assurance that the test procedure with the children and the scoring of the papers are also identical.

Western Electric 4CA Audiometer.

The specimen submitted for examination was given a field trial to determine three things: namely, (1) the ease with which the instrument could be operated by an experienced tester; (2) the credibility of the test results yielded by the instrument, and (3) the stability of the instrument's calibration adjustment over periods of ordinary use. In all three respects the apparatus was found suitable for group testing.

The Council on Physical Medicine voted to include the Western Electric Audiometer, Model 4CA, in its list of accepted devices.

MICRONIC MODEL 101 (MAGNETIC RECEIVER) HEARING AID ACCEPTABLE

Manufacturer: Micronic Company, 727 Atlantic Avenue, Boston 11.

The Micronic Model 101 Hearing Aid is the counterpart to a model previously accepted by the Council. The previous model had a crystal receiver; the present model has a magnetic receiver. While no changes have been made in the wiring of the circuit, minor changes have been made in the chassis. The silver-colored metal case contains microphone, amplifier and batteries. The outside dimensions are 105 by 57 by 27 mm. (4⅛ by 2¼ by 1 1/16 inches) exclusive of the clip in front of the microphone. The entire instrument, with batteries, weighs about 185 Gm. (6½ ounces). The A-battery is of the zinc-carbon type; the B-battery, likewise of the zinc-carbon type, gives 22.5 volts. The batteries are easily replaced. The instrument appears to be sturdily constructed; the following are results of a performance test:

Micronic Hearing Aid Model 101 (Magnetic Receiver).

		Articulation Scores		
Subject	Acoustic Gain	Micronic	Reference	Difference
A	49 db.	85%	80%	+ 5%
B		78%	77%	+ 1%
C	42 db.			
D				
Average	46 db.			+ 3%

The acoustic gain is thus well above the minimum of 30 decibels required by the Council's specifications; the tabulated data show that the articulation of the instrument is slightly better than that of the reference instrument used.

The Council on Physical Medicine voted to include the Micronic Model 101 (Magnetic Receiver) Hearing Aid in its list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 8, 1949

THE DIAGNOSIS OF INFLUENZA

The Commission on Acute Respiratory Diseases [1] has completed studies carried on at Fort Bragg and Camp Mackall of the 1943 epidemic of influenza A. The results of this investigation have been published in a series of eight papers in the November 1948 *American Journal of Hygiene*. The Commission reviews the clinical features as well as the less well known methods of laboratory diagnosis of influenza. The "typical" clinical features are usually considered to be sudden onset of fever, muscular aching, prostration and various signs of inflammation of the respiratory tract. High morbidity rates, wide geographic extent and a sharp increase in pneumonia mortality characterize epidemics, many of which during the past century have been recognized on the basis of these criteria. Nevertheless, it is often difficult to differentiate the clinical and epidemiologic characteristics of influenza from various other forms of respiratory disease.

Since the causative agents of influenza were discovered and laboratory methods of diagnosis have been developed, it has been shown that the influenza viruses may produce not only "clinical" cases but numerous mild atypical illnesses and obscure infections. The proportions of clinical cases which have been confirmed by serologic methods have varied so widely that doubt has been cast on the specificity of influenza epidemics.

Stuart-Harris, Andrewes and Smith [2] studied outbreaks of respiratory disease at military depots in Great Britain and reported differences between the clinical patterns of cases occurring during epidemics of influenza and cases studied during epidemics of noninfluenzal "febrile catarrh." Francis [3] in the United States reported similar observations during the 1936-1937 epidemic of influenza A. In subsequent studies, a definite distinction was not always possible. Thus, some investigators have come to question the existence of a characteristic clinical pattern in influenza A.

A major objective of the present study of the Commission on Acute Respiratory Diseases was to reassess the reliability of clinical, epidemiologic and laboratory methods for diagnosing influenza. During the studies at Fort Bragg, clinical observations were made in a group of 2,000 recruits among whom an epidemic of influenza A was followed by an epidemic of undifferentiated acute respiratory disease. Identical methods of examining patients and recording clinical data were employed in both outbreaks. When the two types of cases were compared in the aggregate, definite clinical differences were observed. Sudden onset, high grade fever, severe constitutional symptoms and involvement of the nasal mucosa were associated more frequently with influenza A than with undifferentiated acute respiratory disease. Other evidence of inflammation of the respiratory tract, particularly sore throat, was observed more often in acute respiratory disease. When the illnesses were diagnosed as influenza A or acute respiratory disease by serologic methods, the differences observed supported the concept of influenza as a separate clinical syndrome. When an attempt was made to differentiate the two diseases in the individual patient by clinical methods alone, however, the accuracy of clinical diagnosis was hardly better than could have been achieved by chance. The "classical" symptom complex was observed in only half of the patients with serologic evidence of influenza A, while numerous patients with acute respiratory disease showed the same clinical picture.

An outstanding feature of the 1943 epidemic in the Army was the simultaneous occurrence of the disease among both seasoned men and recruits. It was the only widespread epidemic of acute respiratory disease observed among seasoned men at Fort Bragg during the period 1942 to 1945. Among recruits, however, laboratory procedures were usually necessary to determine the cause of an epidemic. The occurrence of an epidemic of acute febrile respiratory disease among organizations composed of seasoned men is strong presumptive evidence of the presence of influenza. An epidemic which is confined to recruits, however, is more likely to be undifferentiated acute respiratory disease.

Confirmation of the clinical diagnosis of influenza may be obtained by the demonstration of a rise in the antibody titer of serum collected during convalescence as compared with serum obtained early in the

1. The members and professional associates of the Commission were: John H. Dingle, Director; Theodore J. Abernethy; George F. Badger; Joseph W. Beard; Norman L. Cressy; A. E. Feller; Irving Gordon; Alexander D. Langmuir; Charles H. Rammelkamp, Jr.; Elias Strauss, and Hugh Tatlock.

2. Stuart-Harris, C. H.; Andrewes, C. H., and Smith, W., with Chalmers, D. K. M.; Cowen, E. G. H., and Hughes, D. L.: A Study of Epidemic Influenza: with Special Reference to the 1936-37 Epidemic, Medical Research Council, Special Report Series, no. 228, London. His Majesty's Stationery Office, 1938.

3. Francis, T., Jr.: Epidemic Influenza; Studies in Clinical Epidemiology, Ann. Int. Med. **13**: 915-922, 1939.

illness and by isolation of virus from nasal or pharyngeal washings. A comparative study of four serologic methods for determination of antibodies indicated that the agglutination-inhibition test gave results which were comparable to those obtained with complement fixation and mouse neutralization. In contrast, egg neutralization was the least sensitive test and the most difficult one to perform. The agglutination-inhibition test is based on the fact that influenza viruses agglutinate chicken red blood corpuscles and that this capacity is specifically inhibited by immune serum.[4]

Less than a fourfold antibody response formerly was considered within the limits of experimental error in serologic tests for influenza A. During these studies of the 1943 epidemic, however, the frequent occurrence of twofold increases in titer in the agglutination-inhibition test was considered indicative of influenzal infection.

The specificity of the agglutination-inhibition test appears to vary with the particular strain of virus which is used as antigen. In this epidemic, slight differences were observed between tests performed with the PR8 virus and a locally isolated CRA strain. Epidemiologic evidence indicated that the routine use of the PR8 virus adequately measured the occurrence of influenza. Diagnostic increases in antibody were observed in 90 per cent of the cases among seasoned troops and in 80 per cent of the epidemic cases which occurred in late November and early December among recruits.

The studies at Fort Bragg indicated that the agglutination-inhibition test was a specific and satisfactory procedure for the diagnosis of influenza A in the 1943 epidemic. The agglutination-inhibition technic provided a method for the laboratory diagnosis of influenza that was sufficiently accurate to permit a reliable description of the clinical and epidemiologic behavior of the disease during this epidemic. This finding generally accords with the experience of others.

A comparison of methods for isolating the influenza virus was carried out by the use of embryonated hens' eggs, ferrets and hamsters. Conflicting evidence was secured with regard to the persistence of virus in patients, depending on the method of detection. By inoculation of embryonated hens' eggs, virus was found most frequently during the first three days of illness and occasionally until the sixth day. By the use of ferrets and hamsters, essentially similar results were observed during the first six days of illness but, in addition, evidence of virus was also found in throat washings collected on the seventh, ninth, fifteenth and thirty-fifth days. However, the question of the existence of convalescent carriers of influenza must await further confirmation.

4. Hirst, G. K.; Rickard, E. R.; Whitman, Loring, and Horsfall, F. L., Jr.: Antibody Response of Human Beings Following Vaccination with Influenza Viruses, J. Exper. Med. **75**: 495 (May) 1942.

STREPTOMYCIN-RESISTANT TUBERCULOSIS

One of the handicaps in streptomycin treatment of tuberculosis arises from the apparent rapidity with which tubercle bacilli acquire resistance to this drug. Patients under treatment with streptomycin may at times discharge tubercle bacilli several thousand fold more resistant to streptomycin than the usual strains. This acquired streptomycin tolerance has been studied in detail by Pyle[1] of the Mayo Clinic.

Pyle found that cultures of tubercle bacilli isolated from patients prior to streptomycin therapy are composed of bacterial cells which differ greatly in their streptomycin tolerance. From this he proposes the theory that the more susceptible organisms in a tuberculous lesion are retarded in their growth, thus allowing overgrowth by the more resistant variants. As soon as a predominantly resistant population is established the tuberculous process would become refractory to therapy with streptomycin.

This selective adaptation has been subjected to detailed clinical study by Youmans and Williston[2] of Northwestern University. They prepared Harrold's glycerin egg agar slants containing serial dilutions of streptomycin (1,000 to 0.095 microgram per cubic centimeter). Freshly isolated cultures from tuberculous patients were finely emulsified and heavily inoculated on each of the serial dilutions. The slants were then incubated and examined at weekly intervals for six weeks.

At the end of two weeks all cultures showed a profuse growth on the control or streptomycin-free slant. There was also growth on some of the slants containing the lower concentrations of streptomycin. As the time of incubation lengthened, growth would usually appear on tubes containing the next one or two higher concentrations. These later growths usually consisted of a few scattered colonies. Examination after four weeks' incubation often revealed single isolated colonies on still higher concentrations. These results confirmed Pyle's report that cultures of tubercle bacilli are not composed of cells with a uniform sensitivity to streptomycin.

Of the 57 recently isolated cultures used in their study 25 or 43.5 per cent yielded streptomycin-resistant variants. Twelve of these were resistant to concentrations as high as 100 micrograms per cubic centimeter and 5 to as high a concentration as 500 to 1,000 micrograms per cubic centimeter. Of the 14 cultures isolated from patients before streptomycin therapy was initiated, 9 or 64.3 per cent yielded refractory bacilli. Of the 43 cultures obtained from patients following the institution of streptomycin therapy, streptomycin-resistant variants were isolated from only 37.1 per cent. This lower percentage is seemingly at variance with expectations for Pyle's theory of selective dominance.

1. Pyle, M. M.: Proc. Staff Meet., Mayo Clin. **22**: 465 (Oct. 15) 1947.

2. Youmans, G. P., and Williston, E. H.: Proc. Soc. Exper. Biol. & Med., **68**: 458 (July-August) 1948.

This research is being continued in the hope of determining whether or not in patients who show streptomycin-resistant variants prior to the administration of streptomycin streptomycin-refractory tuberculosis is likely to develop. Whether or not acquired resistance to streptomycin is accompanied by an increase or a decrease in virulence will also be determined. A decreased virulence might be predicted from current bacteriologic theory.

Current Comment

THE VALUE OF A DOCTOR

In a recent schedule of United States Civil Service examinations announcement is made of an examination for a medical officer at a salary of $4,479 to $6,235 per year. In the same announcement there is offered for an agricultural research scientist up to $8,509, for a geographer up to $10,305, chemist $7,432 and astronomers, clinical psychologists and geologists the same. An oceanographer can get up to $10,305. Oh! for a life on the ocean wave!

TOOTHBRUSHES

Americans use more toothbrushes than most of the rest of the world, but even in the United States a survey made some years ago showed that less than one half the people have a toothbrush which they use regularly. There is evidence that very few persons have two toothbrushes which they alternate at various times during the day. While the scientific evidence in support of brushing the teeth as a means of preventing caries or other disturbances is not too profuse or too well established, the use of the brush has met with almost universal approval by hygienists, dentists and physicians. Recently a survey[1] was made of the average use of toothbrushes in the American home. New toothbrushes were offered to a selected sampling of American families who had sent in their toothbrushes then in use. Over 8,000 toothbrushes were received, and more than 6,500 were found to be inadequate and unsatisfactory for a variety of reasons. These included bent or broken bristles, matted bristles or unsatisfactory condition. Almost 2,000 families participated. The average was 4.2 brushes per family. Since there were slightly less than 4 persons per family, it could be assumed that each member of the family had a toothbrush, but examination of the toothbrushes indicated that many of them were being used for other purposes than for brushing the teeth. More than 80 per cent of the brushes were found to be in need of replacement because they could no longer be effective implements in hygiene of the mouth or because their condition was such that they might injure dental tissue. Almost 2,000 toothbrushes were found to be unsatisfactory because of caked dentifrices and food debris at the base of the bristles. Apparently there ought to be some sort of routine inspection and rehabilitation of toothbrushes like that given to motor cars, oil heaters and other domestic devices. The care of a brush of any kind should include thorough cleansing and drying after use and especially when debris accumulates.

1. Gruebbel, A. O., and Wisan, J. M.: A Study of Toothbrushes in Use in American Homes, J. Am. Dent. A. **37**: 346-349 (Sept.) 1948.

WORKMEN'S COMPENSATION

For some time, one of the functions of the Council on Industrial Health has been the study of the complicated ramifications of medical relations in workmen's compensation. During the past few years, it has been evident that such problems needed the consideration of those whose experience might be of additional help to the Council's Committee on Workmen's Compensation. Accordingly, Dr. C. O. Sappington, Chicago, has been appointed as executive director of this Committee. Consultants are also being appointed representing the administrative, legal, insurance and technical aspects of workmen's compensation. The directors of the Bureau of Legal Medicine and Legislation and the Bureau of Medical Economic Research have been invited to serve as members of this consulting group. Projected activities will include field visits to industrial commissions and insurance organizations, attendance at appropriate meetings, preparation of educational material for publication and distribution, consultation services to state and other medical groups, collection of data for special presentation to the profession and the necessary steps to improve treatment of compensable disability, evaluation of disability and medical testimony. The work of the committee is necessarily long range. A few projects may be developed rapidly; others will take time. Medical activity in workmen's compensation can be improved in many ways, and this new approach should produce definite and measurable results.

TASTE BLINDNESS AND DIABETES IN IDENTICAL TWINS

Segall[1] describes the identical genetic constitution of a set of identical twin girls of Jewish parentage. The children both became diabetic between the ages of 3 and 4, had similar bizarre neurologic lesions, mental deficiency and pes cavus. Additionally, both children were taste blind for phenylthiocarbamide (PTC). Neurologic lesions described in the twins emphasized a pattern which existed in the mother at the time of birth. Nondiabetic brothers of the twins were tasters for PTC. Study of the twins emphasized a previously suggested relationship between PTC taste blindness and diabetes. Both these conditions have been assumed to be inherited as recessive mendelian characters. Terry and Segall,[2] in previous study of 680 diabetic and nondiabetic persons, demonstrated a 15.3 per cent greater taste blindness among the diabetic group, indicating an apparently significant statistical difference. A true association was believed to exist even though testing for taste blindness lacks much procedural exactness.

1. Segall, G.: Taste-Blind Identical Twins-With Diabetes and Other Striking Pathological Characteristics, J. Hered. **39**: 228-232 (Aug.) 1948.
2. Terry, M. C., and Segall, Gabriel: The Association of Diabetes and Taste-Blindness, J. Hered. **38**: 135-137 (May) 1947.

ORGANIZATION SECTION

Official Notes

APPLICATIONS FOR SPACE IN SCIENTIFIC EXHIBIT AT ATLANTIC CITY TO CLOSE JANUARY 15

The program for the Scientific Exhibit at the Atlantic City Session is progressing rapidly. The commemoration of the Fiftieth Anniversary of the Scientific Exhibit will be marked by a group of special exhibits, including pathologic specimens similar to those shown in 1899, as well as other material of a historical nature. The Special Exhibit on Fractures will be a summation of more than twenty years' activity in the presentation of this feature. Each of eighteen Sections of the Scientific Assembly will have groups of exhibits dealing with the various specialties and much excellent material is in prospect.

Several other proposed features include clinical demonstrations with patients. Motion pictures will be shown in two large rooms adjacent to the exhibits.

Applications for space in the Scientific Exhibit, as well as applications for time on the motion picture program, will close on January 15. Applications should be sent to the Section Representatives or to the Director, Scientific Exhibit, American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.

PROGRAM OF ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

To be held in the Red Lacquer Room, Palmer House, Chicago, February 6, 7 and 8, 1949

ADVISORY BOARD FOR MEDICAL SPECIALTIES

SUNDAY MORNING, FEBRUARY 6, 9:00 A. M.—12:30 P. M.

Round Table Discussion: ***The Effects of the Specialty Boards on American Medicine.***

Participants to be announced. They will include representatives of medical schools, hospitals, the general public, the armed services, the general practitioner, the specialty boards and the Council on Medical Education and Hospitals of the American Medical Association. The formal program will be followed by a period devoted to questions and general discussion from the floor.

Room To Be Announced

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS, AMERICAN MEDICAL ASSOCIATION

MONDAY MORNING, FEBRUARY 7, 9:30 A. M.

H. G. WEISKOTTEN, M.D., *Presiding*

Address of the Chairman
H. G. WEISKOTTEN, M.D., Chairman, Council on Medical Education and Hospitals, American Medical Association

Economics of the Hospital System
ELI GINSBERG, PH.D., Professor of Economics, Columbia University and Director of the New York State Hospital Study

Utilization of Regional Hospitals for Medical Education
CHARLES F. WILKINSON JR., M.D., Director, Division of Medicine, W. K. Kellogg Foundation and Assistant Professor of Internal Medicine, University of Michigan Medical School

The World Medical Association and Medical Education
LOUIS H. BAUER, M.D., Secretary General, World Medical Association

Classification Policies of Selective Service System
COL. RICHARD H. EANES, M.C., Chief Medical Officer, Selective Service System

MONDAY AFTERNOON, FEBRUARY 7, 2:00 P. M.

H. G. WEISKOTTEN, M.D., *Presiding*

The Relationship of the United States Public Health Service to Medical Education
LEONARD A. SCHEELE, M.D., Surgeon General, United States Public Health Service

A Preliminary Consideration of the Program of the U. S. Public Health Service for the Improvement of Teaching in "Cancer"
SAMUEL C. HARVEY, M.D., Professor of Oncology, Yale University School of Medicine

Pediatrics in the Medical Curriculum
JOHN MCK. MITCHELL, M.D., Dean, University of Pennsylvania School of Medicine

Psychiatry in Medical Education
WILLIAM MALAMUD, M.D., Professor of Psychiatry, Boston University School of Medicine

THE FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES

MONDAY EVENING, FEBRUARY 7, 7:00 P. M.

FEDERATION DINNER

Observations of Medical Conditions in Europe
ROSS L. SENSENICH, M.D., President, American Medical Association
Crystal Room

TUESDAY MORNING, FEBRUARY 8, 9:30 A. M.

EARLE G. JOHNSON, M.D., *Presiding*

Address of the President
EARLE G. JOHNSON, M.D., Nebraska Bureau of Examining Boards

Medical Education in Denmark, Norway and Sweden
ALBERT B. SABIN, M.D., Professor of Research Pediatrics, University of Cincinnati College of Medicine

Medical Education in Poland and Finland
EUGENE B. FERRIS JR., M.D., Associate Professor of Medicine, University of Cincinnati College of Medicine

Foreign Medical Graduates
CREIGHTON BARKER, M.D., Secretary, Connecticut Medical Examining Board

British National Health Act
MORRIS FISHBEIN, M.D., Editor, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

TUESDAY AFTERNOON, 12:30 P. M.

FEDERATION LUNCHEON

Room To Be Announced

TUESDAY AFTERNOON, FEBRUARY 8, 2:00 P. M.

EARLE G. JOHNSON, M.D., *Presiding*

Panel Discussion on:
Licensure of Hospital Residents
Osteopathic and Medical Practice
Foreign Medical Graduates
National Licensing Board
New Licensure Legislation

Members of the Panel:
J. EARL MCINTYRE, M.D., Secretary, Michigan Board of Registration in Medicine
GEORGE W. COVEY, M.D., Nebraska Bureau of Examining Boards
ALBERT B. SABIN, M.D., Cincinnati
EUGENE B. FERRIS, M.D., Cincinnati
CREIGHTON BARKER, M.D., New Haven, Conn.
GEORGE H. RUHLAND, M.D., District of Columbia Commission on Licensure
J. W. HOLLOWAY JR., Director, Bureau of Legal Medicine, American Medical Association

TUESDAY AFTERNOON, FEBRUARY 8, 4:00 P. M.

Business Session

NATIONAL CONFERENCE ON RURAL HEALTH

The fourth annual meeting of the National Conference on Rural Health will take place at the Palmer House Feb. 4 and 5, 1949. The following program has been prepared:

FRIDAY MORNING

8:00 A. M. *Registration*
Red Lacquer Room

9:00—9:05 A. M. *Address of Welcome*
GEORGE F. LULL, M.D., Secretary and General Manager, American Medical Association

9:05—9:15 A. M. *Purpose of Conference*
F. S. CROCKETT, M.D., Chairman, Committee on Rural Health, American Medical Association

9:15—9:55 A. M. *Health Programs of National Farm Organizations*
MRS. J. LAXING TAYLOR, Educational Director, The National Cooperative Milk Producers' Federation, Washington, D. C.
JOSEPH W. FICHTER, Master, Ohio State Grange, Columbus, Ohio.
MRS. GLADYS T. EDWARDS, Director of Education, Farmers Educational and Cooperative Union of America, Denver, Colorado
H. E. SLUSHER, Chairman, Medical Care Committee, American Farm Bureau Federation, Jefferson City, Missouri

9:55—10:15 A. M. *A State Rural Health Committee in Action*
J. S. DE TAR, M.D., Council Member, Committee on Rural Health, Michigan State Medical Society, Milan, Michigan

10:15—10:35 A. M. *Environmental Hygiene*
ERNEST E. STEBBINS, M.D., Professor of Public Health, Johns Hopkins University School of Public Health, Baltimore

10:35—10:55 A. M. *Animal Diseases Affecting Humans*
H. B. MUIRHOLLAND, M.D., Committee on Rural Health, American Medical Association, Charlottesville, Virginia

10:55—11:10 A. M. *Intermission (Film)*

11:10—11:30 A. M. *Nutrition and the Soil*
GLEN W. BUNTING, Manager, Central Farmers' Fertilizer Company, Chicago

11:30—12:00 A. M. *Health Education and Community Responsibility*
AUBREY GATES, Associate Director, Cooperative Extension Work, College of Agriculture, University of Arkansas, Little Rock

12:00—12:30 P. M. *The General Practitioner in Rural Practice*
WARD DARLEY JR., M.D., Executive Dean, Health Sciences and Services, University of Colorado School of Medicine, Denver

PALMER HOUSE, FRIDAY AFTERNOON

Round Table Discussions

2:00—5:00 P. M.

SECTION I *Cooperative Health Programs for Rural Areas*
a. Local health units
b. Local health councils
c. Cooperative hospitals
CHESTER STARR, Chairman
MRS. DORA BARNEY, Co-Chairman
JOHN W. FERREE, M.D., Discussion Leader

SECTION II *Environmental Hazards*
a. Animal diseases affecting human beings
b. Farm accidents
c. Environmental hygiene
D. G. MILLER, M.D., Chairman
C. W. KRUSE, Co-Chairman
MAYNARD COE, Discussion Leader

SECTION III *Health Education—Individual and Community Responsibility*
ROGER CORBETT, Chairman
ELIN ANDERSON, Co-Chairman
PAUL MILLER, Discussion Leader

SECTION IV *The General Practitioner in Rural Practice*
a. Preparation for Rural Practice
b. Facilities
c. Other factors
FRANKLIN MURPHY, M.D., Chairman
LESTER G. EVANS, M.D., Co-Chairman
MRS. HAVEN SMITH, Discussion Leader

SECTION V *Nutrition and the Soil*
W. A. ALBRECHT, Chairman
JONATHAN FORMAN, M.D., Co-Chairman
GLEN BUNTING, Discussion Leader

RED LACQUER ROOM, SATURDAY MORNING

9:30 A. M. *Reports of Round Table Committees and Discussions*

1:00 P. M. *Luncheon*
Speakers:
Introduction of W. L. PRESSLY, M.D., General Practitioner of the Year, Due West, South Carolina
ROSCOE L. SENSENICH, M.D., President, American Medical Association, South Bend, Indiana
DR. JOHN O. CHRISTIANSON, Superintendent of the School of Agriculture, University of Minnesota, St. Paul

Washington Letter

(From a Special Correspondent)

Jan. 3, 1949.

Voorhees Report Urges Sweeping Federal Medical Reforms

Culminating nearly a year's study, the Voorhees Report was issued December 26 by the Hoover Commission, recommending a large number of drastic changes in the federal government's medical establishment. All of its widely scattered services are affected by the proposals, which are expected to be incorporated in the Hoover Commission's final report on reorganization of the government's executive branch which is to be submitted to Congress. Tracy S. Voorhees, Assistant Secretary of the Army, is chairman of the committee and Dr. Edward D. Churchill, professor of surgery at Harvard University Medical School, vice chairman. Ten of the other fourteen members of the committee are doctors of medicine.

The investigators recommended:

Establishment of a cabinet-status federal department encompassing health, education and welfare activities, with a National Bureau of Health that would administer all general hospitals of the Army, Navy, Veterans Administration and U. S. Public Health Service. The armed services would be left only with one teaching hospital each, overseas hospitals and those station hospitals within the continental limits which were too isolated to make inclusion in the merger practical.

Transfer of all medical functions of the Veterans Administration, including outpatient services now performed at regional and branch offices, to the proposed National Bureau of Health. The latter also would take over operation of St. Elizabeths Hospital, 7,000 bed federal mental institution in the District of Columbia.

Greater utilization by the federal government of private and voluntary hospital facilities throughout the country for care of veterans, servicemen's dependents and other charges, on a reimbursable basis.

Congressional action to decide whether the government should extend medical and hospital care to all veterans, irrespective of financial circumstances; solely to service-connected patients, or to the latter plus non-service-connected patients who are economically unable to pay for private care.

Appointment of a deputy to the Secretary of Defense who would supervise medical services in the armed forces. (Secretary Forrestal recently named Charles Proctor Cooper to fill this newly created position and to be chairman of the Armed Forces Medical Advisory Committee, whose first meeting is expected to be held in January.)

Transfer of Food and Drug Administration to the National Bureau of Health's public health division, whose main functions would be administration of grants-in-aid, operation of a clearing house of information on public health activities and enforcement of laws and regulations on interstate commerce in foods, drugs and medicines.

Retention by the Children's Bureau of its present medical, health and grant-in-aid activities because the Bureau "should function as a staff unit directly responsible to the secretary of the proposed department, rather than having its health and other functions split and united with the major proponent units of the department."

Creation of a coordinating committee on nonmilitary medical research comprising representatives of the National Bureau of Health's research and training division, the Atomic Energy Commission and the Department of Agriculture. Also, establishment of an Inter-Agency Committee on Medical Sciences, representing both military and nonmilitary branches of the federal government, whose primary concern would be with appraisal and allocation of government support to nonfederal research institutions.

Transfer to the proposed research and training division of all operations now performed by the National Institutes of Health (research arm of the U. S. Public Health Service). The divi-

sion would operate and control the $40,000,000 Clinical Research Center now under construction at suburban Bethesda, Md.

Establishment of a new federal career medical service whose nucleus would be the present personnel of the Veterans Administration hospitals, the commissioned personnel of the U. S. Public Health Service and all medical professional personnel employed under Civil Service. The U. S. commissioned officers of the U. S. Public Health Service would have the option of joining the new service or continuing in present status, "but no new commissions should be issued."

Institution by the U. S. Public Health Service of a study to determine financial needs of the nation's medical schools and recommend how they should be met. "Care must be taken in granting aid to maintain the professional independence and the initiative of the schools. Also the aid should be given in such a way as to increase the output of trained personnel especially in the areas where there are acute deficiencies."

Unification of medical supply procurement.

Over-all coordination of federal organizations in the medical field by the Bureau of the Budget, assisted by an advisory committee, unless a special agency for this purpose is established in the Office of the President.

"We have attempted to outline a method which we hope will correct the extravagances resulting from the present series of unrelated projects and weld these together into an integrated orderly whole," says the Voorhees Report. "With such an organization, staffed by outstanding personnel, it should be possible to utilize our unequaled medical resources to the maximum and by intelligent planning take steps which will make us a healthier and stronger nation."

Secretary Krug Makes Public Alaskan Health Report

A report urgently recommending correction of Alaska's nine "most urgent" health problems was made public December 9 by Secretary of Interior Julius A. Krug. The report was based on a territorial survey conducted by an American Medical Association committee composed of Drs. John E. Tuhy of Portland, Ore., chairman, Frank H. Douglass of Seattle, W. Charles Martin of Portland, Austin T. Moore of Columbia, S. C., and David B. Law of Seattle. All but Dr. Law, a dentist, are physicians. Alaska's most serious health problems, said the report, are: (1) high incidence of tuberculosis and inadequacy of treatment facilities; (2) shortage of doctors, nurses and technologists; (3) insufficiency of hospital beds in certain communities and absence of any psychiatric hospital in the entire territory; (4) weak control of preventable and communicable disease, especially venereal infections; (5) lack of good sanitation in towns and villages; (6) frequency of alcoholism, with its social and economic consequences; (7) wide prevalence of eye diseases; (8) shortage of dentists and lack of dental care among the natives, and (9) low standards of housing, education and hygiene among natives, conducive to high disease rates.

The American Medical Association group's report to Secretary Krug, who is titular head of the Bureau of Indian Affairs, recommended construction of additional hospital facilities, higher salaries and other inducements to attract physicians and dentists into the Alaska Native Service, construction of a mental hospital in the Matanuska Valley near Anchorage, improvement of living conditions through housing subsidies and certain other measures.

Retention of $100 Extra Pay for Military Doctors Indorsed

The Advisory Commission on Service Pay (Hook Commission) recommended retention of the $100 a month inducement pay now received by medical and dental officers of the Army, the Navy and the Public Health Service, in its report on revision of the armed services' pay structure. Secretary Forrestal made the report public in late December. Of the approximately fifty types of special or extra pay now in vogue, retention of only three is recommended: hazardous duty, sea and foreign duty (for enlisted personnel only) and the inducement pay for medical and dental officers. However, this $100 extra per month would be withdrawn from interns, who are now eligible to receive it.

It was recommended by the Hook Commission that, prior to expiration of the law granting extra pay for medical and dental officers, Secretary Forrestal appoint a personnel board to decide whether this extra compensation should be continued or whether recruitment of doctors has reached a level that would justify its being terminated. Meanwhile payment should be continued, said the Hook Commission. It added that medical and dental officers "should be given constructive credit for pay and promotion equal to the number of years—not in excess of four—of recognized postgraduate training, unless such years are already credited by virtue of other provisions of the law."

Forty-Two Medical Schools Receive Psychiatric Training Grants

Award of $1,498,333 in grants to forty-two medical schools for development or expansion of training in psychiatry for undergraduate medical students has been approved by Dr. Leonard A. Scheele, Surgeon General of the U. S. Public Health Service, on recommendation of the National Advisory Mental Health Council. The funds will become available in July 1949. All but five of the grants are for amounts between $34,000 and $37,500 each.

Houston Naval Hospital Transferred to the Veterans Administration

Veterans Administrator Carl R. Gray Jr. announced transfer to the Veterans Administration of the Navy's 1,000 bed psychiatric hospital at Houston a few days before publication of the Voorhees Report, which advocated the shift. Plans for the Veterans Administration's separate psychiatric hospital, of the same size and which was nearing the construction stage, have been canceled. The transfer will result in a $21,000,000 saving, said Gray, pointing out that it obviates operation of two federal psychiatric institutions across the highway from each other and permits the Veterans Administration to meet needs for 1,000 specialized beds in the Houston area two years earlier than planned.

Coming Medical Meetings

Annual Congress on Industrial Health, Chicago, Drake Hotel, Jan. 18-19. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

Annual Congress on Medical Education and Licensure, Chicago, Palmer House, Feb. 7-8. Dr. Donald G. Anderson, 535 N. Dearborn St., Chicago 10, Secretary.

National Conference on Rural Health, Chicago, Palmer House, Feb. 4-5. Dr. F. S. Crockett, 535 N. Dearborn St., Chicago 10, Chairman.

Alaska Territorial Medical Association, Juneau, March 3-5. Dr. William P. Blanton, Box 2569, Juneau, Secretary.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, New York, Hotel Waldorf-Astoria, March 4. Dr. Norman N. Smith, 291 Whitney Ave., New Haven 11, Conn., Secretary.

American Society for Surgery of the Hand, Chicago, Jan. 21-22. Dr. Joseph H. Boyes, 1401 S. Hope St., Los Angeles 15, Secretary.

International Post-Graduate Medical Assembly of Southwest Texas, San Antonio, Jan. 25-27. Dr. John J. Hinchey, P. O. Box 2445, San Antonio, Secretary.

Southeastern Allergy Association, Durham, N. C., Washington-Duke Hotel, Jan. 22-23. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia, S. C., Secretary.

Southeastern Surgical Congress, Biloxi, Miss., Jan. 24-27. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga., Secretary.

Western Section American Urological Association, Coronado, Calif., Hotel del Coronado, Jan. 17-19. Dr. Adolph A. Kutzmann, 1930 Wilshire Blvd., Los Angeles 5, Secretary.

GOVERNMENT SERVICES

NAVY

FIRST ACTIVE DUTY AS INTERNS

The following lieutenants (jg) in the Medical Corps Reserve have been ordered to their first active duty as interns at civilian medical institutions under the Navy's Medical Training Program. On completion of this training, they will serve at naval activities: Robert K. Bench, Long Beach, Calif., to General Hospital of Fresno County, Fresno, Calif.; Rodger L. Buck, Chicago, to Cook County Hospital, Chicago; William C. Crittenden, Birmingham, Ala., to Grasslands Hospital, Valhalla, N. Y.; Paul T. Drenning, Wayne, Pa., to Huron Road Hospital, East Cleveland, Ohio; Bernard E. Ferrara, Charleston, S. C., to Roper Hospital, Charleston, S. C.; Morton W. Friedman, Los Angeles, to Los Angeles County Hospital; William J. Godfrey, Flushing, N. Y., to Queens General Hospital, Jamaica, N. Y.; James E. Goode, Dallas, Texas, to Scott and White Hospital, Temple, Texas; M. Edwin Green Jr., Harrisburg, Pa., to Temple University Hospital, Philadelphia; Walter B. Grenell, St. Petersburg, Fla., to Cook County Hospital, Chicago; George R. Hatcher Jr., Cleveland, to Grasslands Hospital, Valhalla, N. Y.; William M. Hicks Jr., St. Bernard, Ohio, to Cincinnati General Hospital, Cincinnati; Alfred L. Ingerick, Gallipolis, Ohio, to St. Mary's Hospital, Huntington, W. Va.; Jerrold K. Longerbeam, Redlands, Calif., to Los Angeles County Hospital; Joseph F. Lutz, Bloomfield, N. J., to Newark City Hospital, Newark, N. J.; John R. McCarthy, Chicago, to St. Francis Hospital, Evanston, Ill.; John J. Mezzanotte, Philadelphia, to Nazareth Hospital, Philadelphia; Arthur G. Nelson, Clifton, Texas, to St. Luke's Hospital, Chicago; Robert P. Parker, Seattle, to King County Hospital, Seattle; Harold T. Pruessner, San Antonio, Texas, to Philadelphia General Hospital; Leonard A. Sarnat, Chicago, to Cook County Hospital; Richard C. Stevens, Buffalo, to Huron Road Hospital, East Cleveland, Ohio; William D. Swackhamer, Superior, Ariz., to Charity Hospital of Louisiana, New Orleans; John B. Tully Jr., Bronx, N. Y., to Indianapolis General Hospital, Indianapolis, and Louis W. Wileman, Los Angeles, to State of Wisconsin General Hospital, Madison, Wis.

POSTGRADUATE INSTRUCTION

The following medical officers have been nominated to receive postgraduate instruction in medical specialties: Lieutenant Commander George W. Deyoe, St. Petersburg, Fla., to instruction in children's orthopedics at Carrie Tingley Hospital for Crippled Children, Hot Springs, N. M.; Lieutenants Walter F. Harrison Jr., Woodhaven, N. Y., to a residency in surgery at the Naval Hospital, Bethesda, Md., and Karl R. Whitney, Sudbury, Mass., to instruction in aviation medicine at the School of Aviation Medicine and Research, Pensacola, Fla., and Lieutenants (jg) Benjamin F. Burns, Harrisburg, Pa., to a residency in obstetrics and gynecology at the Naval Hospital, Long Beach, Calif., and John F. Wetegrove, Raymondsville, Texas, to a residency in internal medicine, Naval Hospital, San Diego, Calif.

The following medical officers have been nominated to attend courses of postgraduate instruction: Comdr. Leo W. Olechowski of Detroit to a fellowship in surgery at Northwestern University (Cook County Hospital, Chicago); Lieut. Comdr. Louis P. Ballenberger of Hamlet, N. C., to a residency in otolaryngology at the Naval Hospital, Philadelphia; Lieut. Comdr. Henry R. Ennis of Rahway, N. J., to a fellowship in children's orthopedics at the North Carolina State Orthopedic Hospital, Gastonia, N. C., and Lieut. (jg) Robert A. Loeffler of Medford, Ore., to a residency in general surgery at the Naval Hospital, San Diego, Calif.

PERSONALS

Comdr. James A. Fields, Retired, of South Boston, Va., and Capt. Richard B. Phillips, M.C.R., of Silver Springs, Md., have been voluntarily recalled to active duty.

Major Herbert G. Giddens, Capt. James P. Perrine and Capt. Robert K. Quinnel have been appointed for residency training in obstetrics and gynecology at the U. S. Naval Hospital, Portsmouth, Va.

VETERANS ADMINISTRATION

ELEVEN RADIOISOTOPE UNITS

With the new radioisotope unit at the Veterans Administration Hospital at Nashville, Tenn., the number of such units established by the Veterans Administration is eleven. The other units are at Veterans Administration hospitals in Los Angeles, San Francisco and Van Nuys, Calif.; Framingham, Mass.; New York; Cleveland; Chicago; Minneapolis; Dallas, Texas, and Fort Howard, Md.

In this new program, when a radioactive substance is administered along with remedial drugs, its distribution in the body is checked by means of photographic films or with some such electrical impulse equipment as the Geiger counter. The radioisotopes to be used at present are radiophosphorous, radioiodine, radioiron and radiosodium.

The radioisotope experts from Vanderbilt University in Nashville will work closely with the new radioisotope unit. Active work is expected to start at once. The program at Nashville will be under the general supervision of a special committee of which the hospital manager, Dr. W. E. Cooper, will be chairman and the chiefs of the hospital services will be members. The unit will be directed by Dr. George R. Meneely, assistant chief of medical services at the veterans hospital, who has already done outstanding research with radioisotopes. The Deans committee in Nashville will be represented in the project by a special committee composed of Drs. Howard Curtis, professor of physiology, chairman; Ernest Goodpasture, dean of the Medical School, and Francis G. Slack, professor of physics. Dr. Curtis will be consultant in biophysics to the unit, and Drs. Herbert Francis and Joseph Ivie consultants in radiology.

RECENT APPOINTMENTS

The following recent transfers and appointments in the Department of Medicine and Surgery have been announced: Dr. John B. Floyd, manager of the Veterans Administration hospital in Outwood, Ky., formerly chief medical officer of the Veterans Administration office in Lexington, Ky.; Dr. Carleton Bates, manager of the Brooklyn, New York, Veterans Administration hospital, formerly with the Veterans Administration hospital in Castle Point, N. Y.; Mr. Noel M. Jaffrey, manager of the Castle Point hospital, formerly staff member of the Brooklyn Veterans Administration hospital; Dr. George S. Littell, manager of the Veterans Administration hospital in Amarillo, Texas, formerly chief of professional services of the Veterans Administration hospital in Temple, Texas.

A recent transfer includes: Dr. Joseph G. Spendlove, chief of professional services of Veterans Administration branch office no. 11 in Seattle, Wash., to the Veterans Administration center in Fort Harrison, Mont., as chief medical officer.

Other recent appointments include: Dr. Albert Oppenheimer as chief, radiological service, Providence, R. I., hospital, and Dr. Pierre E. Provost as chief of eye-ear-nose-throat service, Veterans Administration center, Togus, Maine.

REVISED REGULATIONS FOR HOMES FOR PARALYZED VETERANS

The regulations governing the eligibility of paralyzed veterans for grants for use in acquiring homes especially designed for wheel chair living have been revised, the Veterans Administration announces, to eliminate the requirement that the veteran's bladder and bowel functions must be paralyzed in order to qualify for a grant up to $10,000. That requirement was in the original instructions issued by the Veterans Administration as contained in Public Law 702 of the 80th Congress. The language of the new instruction defines paralysis of the legs and lower part of the body as "paralysis of both lower extremities produced by lesion of the spinal cord resulting from disease or injury thereof, such as to preclude locomotion without the aid of braces, crutches, canes or a wheel chair, accompanied by paralysis of the lower trunk."

All applications previously disallowed under the original definition will be reviewed in the light of the new instructions. It has been estimated that more than 2,000 veterans may qualify for grants under this law. No veteran who has been turned down need reapply.

PUBLIC HEALTH SERVICE

INFLUENZA INFORMATION CENTER ESTABLISHED

Surgeon General Scheele of the Public Health Service announced December 24 that a plan has been developed by the Surgeons General of the Army, Navy, Air Force and Public Health Service to prevent a serious epidemic of influenza like that which occurred in 1918 and that an Influenza Information Center has been established at the National Institutes of Health, Bethesda, Md. The plan is part of an international program set up by the World Health Organization the objectives of which are to identify new strains of influenza virus as they appear and to evaluate their usefulness for incorporation in influenza vaccine. The program, the success of which will depend largely on the prompt reporting by local physicians and health officers of all suspected cases of influenza, will operate in the United States as follows:

When a significant outbreak of respiratory disease suspected to be influenza has been reported in a given community, the Influenza Information Center will alert diagnostic laboratories in the region, asking them to carry out serologic tests on patients for the presence of antibody against the influenza virus. Certain laboratories will also be asked to assign the affected community a team of investigators experienced in the technics of isolating the virus. As soon as these investigators isolate a new strain of virus, they will send it at once for a complete antigenic analysis to the Strain Study Center of the Influenza Commission, Army Epidemiological Board, Long College of Medicine, Brooklyn. Appropriate strains of the virus which have been isolated will be considered for possible inclusion in commercial vaccine.

While the cooperation of all diagnostic laboratories in the nation is being sought, a number of especially qualified laboratories has been formally invited to participate in the program, and fifty-six have already accepted this invitation.

The international influenza program was proposed during the Fourth International Congress for Microbiology at Copenhagen in July 1947. Two months later the Interim Commission established the International Influenza Center at the National Institute for Medical Research in London. The World Health Organization at its first World Health Assembly approved continuance of this center and recommended that all nations be invited to set up organizations to collaborate with it. The Surgeon General, U. S. Public Health Service, referred this proposal to Dr. R. E. Dyer, Director of the National Institutes of Health, who passed it on for advice to the Virus and Rickettsial Study Section at the Institutes. This group recommended that the program in the United States be built largely around the Army's Influenza Strain Study Center at Long Island College of Medicine and should use existing facilities for investigating influenza.

A committee comprising representatives of the four Surgeons General adopted these recommendations. It was further decided that an Influenza Information Center be established to administer the program in this country and to serve as liaison office between the International Influenza Center and participating American laboratories.

A list of these laboratories follows. The asterisk indicates those equipped for virus isolation as well as serologic tests:

LABORATORIES OPERATED BY THE FEDERAL GOVERNMENT

Department of the Army

Army Medical Dept. Research and Graduate School, Washington, D. C.
*First Army Area Medical Laboratory, 90 Church St., New York
Second Army Area Medical Laboratory, Ft. G. G. Meade, Md.
Third Army Area Medical Laboratory, Ft. McPherson, Ga.
*Fourth Army Area Medical Laboratory, Ft. Sam Houston, Texas
Fifth Army Area Medical Laboratory, Ft. Sheridan, Ill.
*Sixth Army Area Medical Laboratory, Ft. Baker, Calif.

Department of the Navy

*Navy Medical Research Unit No. 4, Great Lakes, Ill.

Public Health Service

*Laboratory of Infectious Diseases, National Institutes of Health, Bethesda, Md.
*Virus Laboratory Branch, Communicable Disease Center, Montgomery, Ala.
*Rocky Mountain Laboratory, Hamilton, Mont.

LABORATORIES OPERATED BY STATE AND LOCAL GOVERNMENTS

State Laboratories

*California, Dept. of Public Health, Berkeley
Florida, Board of Health, Jacksonville
*Illinois, Dept. of Public Health, Chicago
Indiana, State Board of Health, Indianapolis
Louisiana, Dept. of Health, New Orleans
Maryland, Dept. of Health, Baltimore
Massachusetts, Dept. of Public Health, Boston
*Minnesota, Dept. of Health, Minneapolis
Missouri, Division of Health, Jefferson City
Nebraska, Dept. of Health, Lincoln
Nevada, Dept. of Health, Reno
New Jersey, Dept. of Health, Trenton
*New York, Dept. of Health, Albany
North Carolina, Board of Health, Raleigh
Ohio, Dept. of Health, Columbus
Oklahoma, Dept. of Health, Oklahoma City
Oregon, Board of Health, Portland
South Carolina, Board of Health, Columbia
Texas, Dept. of Health, Austin
Utah, Dept. of Health, Salt Lake City
Vermont, Dept. of Public Health, Burlington
Virginia, Dept. of Health, Richmond
*Washington, University of Washington, School of Medicine, Seattle (acting for State Dept. of Health)
Wisconsin, Board of Health, Madison
Wyoming, Board of Health, Cheyenne

Municipal Laboratories

District of Columbia, Health Dept., Washington
Los Angeles, Dept. of Health
*New York, Public Health Research Institute

Insular and Territorial Laboratories

Territory of Alaska, Dept. of Health, Anchorage
Territory of Hawaii, Dept. of Health, Honolulu
*Government of Puerto Rico, School of Tropical Medicine, San Juan

LABORATORIES SUPPORTED BY FUNDS SUPPLIED BY THE FEDERAL GOVERNMENT

Contractors Under Influenza Commission, Army Epidemiological Board

*Iowa, Dr. William M. Hale, University of Iowa
*Michigan, Dr. Thomas Francis Jr., University of Michigan
*New York, Dr. Harry M. Rose, Columbia University
*New York, Dr. T. P. Magill, Long Island College of Medicine
*Pennsylvania, Dr. Jonas E. Salk, University of Pittsburgh

Contractors Under Office of Naval Research

*Maryland, Dr. T. G. Ward, Johns Hopkins University
*Pennsylvania, Dr. W. Henle, Children's Hospital of Philadelphia

Grantees Under Research Grants Program, U. S. Public Health Service

*Connecticut, Dr. E. C. Curnen, Yale University
*Illinois, Dr. C. G. Loosli, University of Chicago
*Maryland, Dr. T. B. Turner, Johns Hopkins University
*Missouri, Dr. H. Pinkerton, St. Louis University
*Pennsylvania, Dr. W. Henle, Children's Hospital of Philadelphia
*Pennsylvania, Dr. M. A. Lauffer, University of Pittsburgh
*Tennessee, Dr. D. H. Sprunt, University of Tennessee
*Utah, Dr. G. R. Leymaster, University of Utah

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Carter, Richard D.....Jamestown
Crook, Donald H.....Jack
Trice, Peter A. Jr.....Thomasville
Voyles, Carl M. Jr.....Auburn
Young, Jack R.....Florala

Arizona

Wood, Joshua P. Jr.....Tucson

Arkansas

Eisele, William M.....Hot Springs
Fulmer, John M.....Booneville
Hill, Roy F. Jr.....DeValls Bluff
Jackson, Lawrence M. Jr.....Pine Bluff
Sammons, Vernon E. Jr.....El Dorado
Ward, Herbert W.....Hot Springs
Wood, John P.....Mena
Wood, Julian D.....Fountain Hill

California

Amyes, Lowell S.....Los Angeles
Baird, Charles G.....Santa Maria
Bickerton, John H. Jr.....Ontario
Brenner, Melvin A.....Los Angeles
Carson, Samuel P.....Los Angeles
Castile, Daniel S.....Hanford
Champaign, Donald A.....Los Angeles
Hamilton, James A.....San Francisco
Hayes, Edward W. Jr.....Monrovia
Jeffers, William W.....Fullerton
Lloyd, Leslie G.....Huntington Park
Luke, Maurice R.....Burlingame
Mansell, Denny H. Jr.....Los Angeles
Metson, Bates F.....San Francisco
Parsons, Darold J.....Oakland
Reidenbach, John C.....Oakland
Slaughter, Howard C.....Los Angeles
Thomas, Stephen C. Jr.....Oakland
Woods, Neal C. Jr.....Alhambra
Zeavin, Bernard.....San Francisco

Colorado

Williams, Lowell K.....Denver

District of Columbia

Amoroso, William L.....Washington
Bean, Harold R.....Washington
O'Neill, Allen J.....Washington

Florida

Howell, Louis M.....Jacksonville
Jenkins, Valentine E.....Miami
Jones, George R.....Jacksonville
Peek, Eugene G. Jr.....Ocala
Philips, Benjamin J. Jr.....Jacksonville
Pinkoson, Charles.....Gainesville
Ryon, Thomas N.....Miami
Tugwell, Frank E.....Pensacola
Yonge, Henry M.....Pensacola

Georgia

Bates, William B. Jr.....Waycross
Bonner, William H.....Lavonia
Cooley, Joe B.....Atlanta
Galloway, Benjamin T. Jr.....Moultrie
Gillman, Aron N.....Augusta
Hamilton, William F. Jr.....Augusta
Harris, Thomas A.....Atlanta
Hoffman, Frank .....Savannah
Hogsette, Jerry B.....Vienna
Jacob, Joseph S.....Atlanta
Jennings, Henry S. Jr.....Dawson
Jordan, Thomas C. Jr.....Bartow
Krafka, Joseph F.....Augusta
Meadows, John C. Jr.....Athens
Mentzer, Dodge D.....Atlanta
Patz, Arnall .....Elberton
Sams, William C. Jr.....Dallas
Sims, Frederick E.....Decatur
Teate, Hentz L. Jr.....Thomasville
Witham, Abner C.....Atlanta

Idaho

Babcock, Donald E.....Buhl
Mather, John A.....Boise
Woodcock, Herbert M....Coeur d'Alene

Illinois

Angle, Richard M.....Chicago
Antonow, Arthur M.....Chicago
Branden, Edwin S. Jr.....Evanston
Camras, Sidney.....Chicago
Caporale, Frank S.....Chicago
Cataldo, Marne.....Chicago
Clayton, Frederic K.....Farmington
Dashut-Dante, Edward.....Chicago
Eisenberg, Harold J.....Chicago
Ivy, John H.....Chicago
Jakofsky, Maurice.....Chicago
Kearney, Walter R. Jr.....Chicago
Klaren, Earl V.....Chicago
Korn, Roy J.....Chicago
Marzinelli, Ferdinand J.....Chicago
Novak, Frank J. III.....Riverside
O'Connor, William R.....Chicago
Pantone, Anton M.....Chicago
Ramey, Charles A.....Danville
Rapoport, Leonard P.....Chicago
Shalova, Charles H.....Chicago
Strauss, Sol S.....Chicago
Turgi, Robert W.....Oak Park
Valencia, Elpidio I.....Chicago
Vykouk, Frank J.....Cicero
Wells, Charles K.....Waltonville
Wilhelm, Warren F.....Chicago
Wilson, Scottie J.....Urbana
Zuidema, Jacob J.....Chicago

Indiana

Ahlering, George H.....Indianapolis
Allen, Robert L.....Fort Wayne
Allen, Robert T.....Clark's Hill
Benchik, Frank A.....East Chicago
Bergan, Joseph A.....South Bend
Boaz, Willard D.....North Manchester
Bopp, Henry W. Jr.....Terre Haute
Cook, Thomas D.....Hammond
Doran, Jordan H.....Burket
Everett, Daniel W.....Indianapolis
Gaddis, Newell C.....Anderson
Glaser, Edward J.....Brookville
Haller, Robert L.....Fort Wayne
Hamp, Arthur K.....Kokomo
Haymond, George M..North Manchester
Huse, William M.....Indianapolis
Johnson, Owen B.....Peru
Knowles, Robert P.....Indianapolis
Labotka, Charles A.....Hammond
Lehman, Kenneth M.....Goshen
Little, William J.....Bicknell
Lynxwiler, Chester P.....Evansville
Manifold, Harold M.....Ingalls
McClintock, James A.....Muncie
Morphew, Raymond .....Indianapolis
O'Bryan, Richard B.....Columbus
Priebe, Fred H.....Ladoga
Raphael, Robert L.....Evansville
Rowdabaugh, Marshall J.....Warsaw
Scamahorn, Malcolm O.....Indianapolis
Schreiner, John E.....Anderson
Sibbitt, Joseph W.....Frankfort
Van Kirk, John R.....Kentland
Van Sickle, Walter J.....Indianapolis
Walter, William A. Jr.....Gary
Weiss, Eugene.....South Bend
Whiteman, Rex K.....Logansport
Wiley, William M.....Shelbyville
Wohlfeld, Gerald M.....Indianapolis

Iowa

Aagesen, Carl A.....Dows
Ahmann, Edward J.....Sioux City
Conkling, Russell W.....Des Moines
Gutenkauf, Charles H. .....Marcus

Iowa—Continued

Miller, Richard L. .....Waterloo
Morton, Richard G.....Algona
Nemmers, Gerald J.....Lamotte
Singer, John R.....North Newton
Watson, Charles F.....Humboldt

Kansas

Berkey, Vernon A.....Mulberry
Nolan, James R.....Kansas City

Kentucky

Boles, Robert G.....Louisville
Leake, Robert S.....Fort Thomas
Nolan, Robert B.....Harlan
Pfister, Glenn L.....Fort Thomas
Whitaker, Howard W. Jr.....Louisville

Louisiana

Batson, Hiram W. K.....New Orleans
Welch, George E.....New Orleans
White, Roy Jr.....New Orleans

Maine

Beaullieu, Gerald A.....Jeanerette
Lord, Harrison L.....Takoma Park
Meserve, Francis B.....Caribou
Stetson, Lawrence J.....Auburn
Weinberg, Harold H.....Baltimore
Weiss, Moe.....Mount Rainier
Wickert, Clifford J.....Baltimore
Young, Joseph M.....Baltimore

Maryland

Bell, Houston L.....Williamsport
Carr, Charles E. Jr.....Baltimore
Gill, Johnathan B. .....Ashton
Hall, Arthur T. Jr.....Baltimore
Hammond, Daniel O.....Baltimore
Kehne, Wilmer D.....Frederick
Kenworthy, Richard A. 3d...Centreville
Norment, Richard B. III....Hagerstown
Patton, John D.....Bel Air
Riley, Eugene J.....Baltimore
Somerville, Donald L.....Cumberland
Weintraub, Joseph .....Baltimore

Massachusetts

Adelson, Lester.....Chilsen
Arnett, Vitold.....Worcester
Dickens, Dale R.....Worcester
Johnson, Melvin Julius.....Worcester
Vezina, Raoul E.....Springfield
Young, Bradford W.....Boston

Michigan

Birk, Wilbur R.....Ann Arbor
Brashares, Zane A.....Jackson
Carron, Dean P.....Detroit
Cordes, Jerome F.....Leland
Elmendorf, Ed. N. II....St. Clair Shores
Getty, William H.....Port Huron
Hendrickson, Willard J....Battle Creek
Howard, Frank W.....Benton Harbor
McGinnes, Harold P.....Charlotte
Magielski, John E.....Detroit
O'Dell, Charles W.....Three Rivers
Winchell, Clarence P.....Ionia
Worgess, Duane R.....Battle Creek

Minnesota

Belshe, Joseph C.....Northfield
Leider, Allan R.....St. Paul
Whiting, Adolph M.....Minneapolis

Mississippi

Ainsworth, William L.....Bay Springs
Austin, Samuel D.....Harperville
Truman, Prentise A.....Horn Lake
Zeigel, Howard V.....Cleveland

PHYSICIANS SEPARATED FROM SERVICE

Missouri

Alex, Morris.....St. Louis
Bumgarner, James E.....Odessa
Clough, John.....Maysville
Crouch, William H. Jr.....Linn
Doores, James R.....Bronaugh
Hall, Robert H.....St. Louis
Inkley, John J.....St. Louis
Johnson, Norton E.....St. Louis
Mudd, Joseph F. G.....St. Louis
Penninger, William H...Mountain View
Rufe, Jack R.....Kansas City
Washington, Edward L.....Hannibal
Wool, Frohman.....St. Louis

Montana

Cole, Frank V.....Anaconda
Danielson, John L.....Anaconda
Hilgert, Frederick L.....Laurel

Nebraska

Campbell, Norman R.....Scottsbluff
Foe, Adrian A.....Red Cloud
Gottschalk, Robert H.....Lincoln
Pantano, Tonny R.....Omaha
Pavelsek, Joseph W.....Holdrege
Peltier, Leonard F.....Lincoln
Redelfs, John W.....Omaha
White, John C.....Omaha

New Hampshire

Demopoulos, James T.....Dover
Woodbury, John W.....Madison

New Jersey

Anthony, John J.....Hammonton
Beaugard, Peter A.....Jersey City
Castiglia, Peter C.....Passaic
Chapman, Stanley B.....Ridgefield Park
Collinson, Daniel J.....New Monmouth
Cooper, Kent P.....Maplewood
Dewing, Stephen B.....Princeton
Gadek, Raymond J.....Perth Amboy
Guttmann, John S. Jr.....Clifton
Harryman, William K. Jr....Hackensack
Hertzberg, Arthur D.....Bayonne
Kline, Oram R. Jr.....Woodbury
Larner, Joseph.....Orange
McKeever, John B.....Spring Lake
Magee, Alfred J.....Jersey City
Matteson, Albert R. Jr.....Paterson
Nutzel, Leon P.....Nutley
Ott, Franklin B.....Newark
Piness, Sidney G.....Plainfield
Puff, Robert C.....Haddon Hgts.
Ritzenthaler, John G.....Montclair
Roe, William J.....Paterson
Rotondi, Leonard J.....Newark
Sandick, Herbert.....Jersey City
Schaefer, Franklin H.....Jersey City
Siegendorf, Saul.....Passaic
Sommer, Julius J. G.....Elizabeth
Storer, John.....Pitman
Turkish, Martin.....Bayonne
Votos, Anthony S.....New Brunswick
White, Ensley M. Jr.....Red Bank
Wickenden, Thomas C.....Short Hills

New York

Aaron, Jules B.....Brooklyn
Bannon, Charles R.....Glens Falls
Barsa, Joseph A.....Bronx
Baum, Gilbert.....Brooklyn
Berlin, Paul F.....Brooklyn
Burt, James C.....Rochester
Callahan, Justin T.....New York
Cerasoli, Arnold J.....Bronx
Goldberg, Alfred.....Brooklyn
Harris, Leon A.....Syracuse
Laglia, Vito P.....Buffalo
Rutecki, Joseph E.....Buffalo
Tracy, William J. Jr.....Hornell
Tuke, Charles T.....Rochester
Turin, Richard D.....Brooklyn
Uberti, Bruno.....New York

New York—Continued

Van den Bosch, Thomas Jr.....Mineola
Victoroff, Victor M.....New York
Von Gal, Herbert V.....Brewster
Watrous, Joseph B. Jr.....Binghamton
Watson, Tompkins G.....Middleburg
Williams, Frederick D.....Fairport
Wilson, William E.....New York
Worden, Whiting F. G....Saranac Lake
Yerkovich, Anthony C.....Lackawanna
Zeldis, Louis J.....Rochester
Zelman, Stanley.....Lawrence

North Carolina

Abernethy, Joseph W.....Granite Falls
Bailey, Claude F.....Elizabeth City
Bobbitt, Robert L.....Rocky Mount
Bradsher, James D.....Roxboro
Eaker, Ralph G.....Lawndale
Henninger, Joseph B.....Chapel Hill
Henson, Joseph B. Jr.....Snow Hill
Holt, Earl P.....Oak Ridge
Huffstetler, William H. Jr...Haw River
Johnston, George B.....Kelford
Minges, Ray D.....Greenville
Moore, Horace G. Jr.....Wilmington
Ruffin, Clarence L.....Tarboro
Thomas, James V.....Winston-Salem
Truslow, Roy E.....Spray
White, Hayes M. Jr.....Raleigh
Wilkerson, Charles B. Jr.....Raleigh
Witchers, Walter B.....Charlotte
Wooten, Cecil W. Jr.....Kinston

North Dakota

Boyd, John F.....Fargo
Michels, Arthur G.....Oberon
Pust, Earl W.....Fessenden

Ohio

Abrams, Bernard S....Cleveland Heights
Baumann, David P.....Dayton
Crawford, Howard R.....Cincinnati
Downey, Joseph F.....Cincinnati
Hamsher, John Biddle.....St. Paris
Hatfield, Charles J.....Columbus
Jaffe, Marvin.....Youngstown
Katz, Elmer G.....Cincinnati
Miller, Charles J. Jr...New Philadelphia
Mithoefer, John C.....Cincinnati
Mueller, Richard P.....Cleveland
Owens, Jack E.....Lakewood
Peerless, Sidney A.....Cincinnati
Sidoti, Vincent J.....Cleveland
Sneed, William R. Jr.....Hamilton
Vogel, Robert A.....Columbus
Welty, Kenneth A.....Lima
Zegiob, Charles G.....Lorain

Oklahoma

Allgood, Edward A.....Hobart
Anderson, Thomas P.....Oklahoma City
Brown, Leonard H.....Muskogee
Childers, Stanley G.....Tipton
Dardis, Walter T.....Oklahoma City
Ellis, Richard A.....Duncan
Ivey, Roy D.....Sallisaw
Kouri, Paul.....Granite
Miller, Raymond D.....Hollis
Percefull, Sabin C.....Alva
Shellenberger, Charles G..Oklahoma City
Simon, Ralph.....Clinton
Smith, Byron F.....Tulsa
Smith, Henry C.....Lawton
Trzaska, Henry C.....Oklahoma City

Oregon

Camber, Rober L.....Portland
Campbell, Robert A.....The Dalles
Flanagan, Roger M.....Portland
McGill, Clinto S. Jr.....Portland
Pace, William Roby Jr.....Portland
Payne, Robert D.....Ontario
Piestrak, Victor J.....Portland
Young, Robert D.....Portland

Pennsylvania

Arthur, Joseph N. Jr.....Pittsburgh
Bearzy, Herman J.....Pittsburgh
Burns, William T.....Harrisburg
Colgan, Harry J.....Pittsburgh
Cubler, Edward W.....Philadelphia
Dusckas, George J.....Erie
Fornasier, Mario E.....Philadelphia
Fritz, Karl J. Jr.....Johnstown
Guie, Robert W.....Dunbar
Huot, David A.....Pittsburgh
Ivins, Samuel P.....Chester
Jackson, Richard D.....Erie
Kelton, Franklin C.....St. Davids
Kutz, Eugene R.....Hazelton
Labowskie, Eugene M.....Philadelphia
Lockwood, Robert M.....Haverford
McConahy, John G. III.....New Castle
Ryan, Lawrence W.....Norwood
Rydze, Robert A.....Pittsburgh
Schlaff, Zachary.....Philadelphia
Updegrove, Robert A.....Herndon
Waltemyer, William C. Jr...Gettysburg
Weber, William D.....Erie
Winer, Melvin L.....Pittsburgh
Wolkowicz, Michal I.....Philadelphia

Rhode Island

Orme, Robert J.....Providence

South Carolina

Adickes, George C.....York
deSaussure, Charlton.....Charleston
Poynor, Charles M.....Charleston
Raisin, Aaron S.....Charleston
West, George F.....Camden

South Dakota

Argabrite, John W.....Watertown
Wood, George F. Jr.....Watertown

Tennessee

Austin, Grover W.....Cottage Grove
Burkhart, John H.....Knoxville
Chalfant, Robert L.....Nashville
Pruitt, Maurice C.....Nashville
Webber, Alred B.....Madison College

Texas

Addison, Eugene M.....Huntsville
Berchelmann, August G....San Antonio
Campos, Francisco J.....El Paso
Childress, James L.....Joaquin
Colletti, Ben M.....Port Arthur
Heath, Joe Dibrell.....Dallas
Holmes, Robert L. Jr.....Dallas
Jacob, Norman H. Jr.....Yorktown
Kee, John L. Jr.....Waco
Langdon, Robert G.....Dallas
Leggert, Elbert R.....Fort Worth
McVicker, Bobby.....Ruck
Magliolo, Albert M.....Galveston
Mitchell, Donald D.....Corpus Christi
Neel, Joseph C. Jr.....Fort Worth
Niblo, Grady Jr.....Dallas
Oliver, Billy B.....Commerce
Rivas, Jose A.....Cleburne
Roddy, William N.....Waco
Skaggs, Ray H. Jr.....Houston
Smith, Marshall L.....Vernon
Snapp, Forrest E.....Houston
Thomas, Henry W. Jr.....Commerce
Trulove, Laurance A.....Amarillo
Voulgaris, Dennis M.....Houston
Wilkinson, John M.....San Antonio
Zabbia, Carl A.....Dallas

Washington

Boals, David C.....Seattle
Boutin, Frank J.....Spokane
Davis, Richard T.....Tacoma
Holderby, Harland W.....Toppenish
Johnson, Frank R.....S. Seattle
McMakin, Ward C.....Camas
Mullins, John R.....Yakima

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

Portrait of Dr. Harris.—A portrait of Dr. Seale Harris, Birmingham, professor emeritus of medicine, was presented to the Medical College of Alabama on the evening of December 17 as a gift of the doctors of Alabama. Dr. Harris was professor of medicine at the Medical College of Alabama when the school was located in Mobile. He has also done renowned work on hyperinsulinism and as a medical biographer. The presentation was made by Dr. Lon Grove of Atlanta.

COLORADO

Governor's Health Council.—A committee of thirty-three persons has been appointed by Governor Lee Knous to organize a legislative campaign for the passage of proposed health bills to be introduced in the 1949 state legislative session and to carry on a statewide educational program regarding the bills. Dr. Florence R. Sabin, Denver, is chairman.

Grants to Medical Center.—The University of Colorado Medical Center received more than $250,000 in the year ending November 1 for 131 major projects under way at the center. Grants in aid from private sources totaled $36,953, and the rest was received from government agencies. The totals do not include funds received from the Child Research Council. Eleven major government projects are sponsored by the U. S. Public Health Service and the Army and Navy.

DISTRICT OF COLUMBIA

Society Cites Christie and Wall.—The Medical Society of the District of Columbia presented certificates for meritorious service to Drs. Arthur C. Christie and Joseph S. Wall at their recent annual meeting. Dr. Christie was cited as a "public-spirited citizen [who] has by his unflagging interest and wholehearted endeavor greatly advanced the cause of better medical care." Dr. Wall, who was head of the department of pediatrics at Georgetown University School of Medicine, was cited for his outstanding contribution as a citizen and credited with having done more than anyone else for passage of the present Healing Arts Practice Act in the District of Columbia. Both physicians are past presidents of the society.

Cancer Research.—Checks for two grants for cancer research were given to George Washington University by the District and American cancer societies. The funds will be used to provide facilities for all projects now being carried on at the Warwick Memorial Clinic. These facilities will include hiring a chemist for a radioactive tracer laboratory under the direction of Paul K. Smith, Ph.D., professor of pharmacology, the hiring of a tissue culture technician for the screening of chemicals as regards their action on malignant cells and the maintenance of four beds in George Washington University Hospital for cancer cases under study. This brings to eight the number of such beds now being maintained at the hospital. The other four are being supported as part of a cooperative venture between the university and the National Institutes of Health.

ILLINOIS

Conferences on Rural Health.—The Illinois State Medical Society has arranged two conferences on health problems of rural areas during January. The session which meets at the Emmerson Hotel, Mount Vernon, January 20, will bring in farm, medical, 4-H Club and state health leaders by invitation from the counties of about one third of the state south of a line through Calhoun County. The Peoria conference covers the area to the north and west. Discussions on tuberculosis, the hospital construction act as it affects Illinois planning, the opportunities offered youth in medicine and allied professions and the compulsory health insurance programs are on the program; these and cancer and county health departments will be discussed at the second conference, to be held at the Pere Marquette Hotel, Peoria, January 21.

Suburban Health Survey.—The Committee on Chicago-Cook County Health Survey, Health Division of the Council of Social Agencies of Chicago-Cook County, says that suburban health service is short of help. There are 40 public health nurses in Cook County outside of Chicago to watch over its 800,000 population, a proportion of 1 to nearly 20,000; modern public health standards call for a proportion of 1 to 5,000. There should be, the committee says, nearly 160 nurses. The proposed 1949 budget asks for 12 additional. The deficiency is equally manifest in other phases of public health work. Public health standards call for 1 sanitary engineer and 1 sanitarian for every 50,000 population and 1 health educator and 1 nutritionist for every 100,000, or a staff of 16 engineers, 16 sanitarians, 8 educators and 8 nutritionists. Against that ideal standard, the department has 4 sanitary engineers and 1 each of the other categories. The survey committee is urging the board of commissioners of Cook County to provide a substantial increase for suburban public health work in 1949. The increase in suburban population, some 175,000 persons in five years, has intensified the needs of the Cook County Department of Public Health, which has asked a budget of $352,000, compared to $146,000 last year. With this increase, according to a spokesman of the survey, suburban expenditure for health protection will be far below the minimum standard of $1 per capita.

Chicago

Appoint Chairman of Pediatric Department.—Dr. John A. Bigler has been named acting chairman of the department of pediatrics at Northwestern University Medical School and medical director of Childrens Memorial Hospital, replacing Dr. Stanley Gibson, who retired December 1. Dr. Bigler has been a member of the medical faculty since 1930 and associate professor of pediatrics since 1944. He is a graduate of Rush Medical College, 1923.

Exhibit in Memory of Dr. Irving Cutter.—To honor the late Dr. Irving S. Cutter, former health editor of the *Chicago Daily Tribune* and for many years dean of Northwestern University Medical School, the university recently opened an exhibit of photographs, manuscripts and rare volumes in its Chicago campus medical library. Dr. Cutter took over the *Tribune* "How to Keep Well" column after the retirement of its previous editor, the late Dr. William A. Evans, in 1934, and conducted it until his death Feb. 2, 1945. The exhibit includes rare books from Dr. Cutter's collection of early works on midwifery and manuscripts of his original contributions in the fields of medical education and history.

Personals.—Dr. Louis N. Katz, director, cardiovascular department, Michael Reese Hospital, was the guest speaker at the postgraduate course in cardiology given November 29 to December 2 by the Dallas (Texas) Southern Clinical Society. He also addressed the Dallas Internists Club on "The Control of the Coronary Circulation" and the Dallas County Medical Society on "The Progress of Coronary Disease."——Dr. Ludvig Hektoen was awarded the first Honorary Fellowship in the College of American Pathologists October 11 in acknowledgment of his distinguished career and outstanding service to pathologists.——Dr. James T. Case was presented the Merito Militar Medal recently in ceremonies in México, D. F. He was commended for his assistance to Mexican physicians who have come to the United States for postgraduate specialty training, some of whom served as his residents.

Institute of Medicine.—At the annual meeting of the Institute of Medicine of Chicago on December 7, an illuminated parchment scroll was presented to Dr. George H. Coleman by the board of governors and officers as a tribute of appreciation for his outstanding contribution to the welfare of the institute throughout twenty-five years of continuous service as secretary. Drs. Warren W. Furey, Eric Oldberg, Charles B. Puestow and H. Prather Saunders were elected to the board of directors. Officers for 1949 are Drs. Henry T. Ricketts, chairman of the board of governors; William F. Petersen, vice chairman of the board; Herman L. Kretschmer, president; Archibald L. Hoyne, vice president; George H. Coleman, secretary, and Grant H. Laing, treasurer.——Citizen fellowship in the Institute of Medicine was conferred on Miss Ella M. Salmonsen, medical librarian of the John Crerar Library, for her contributions as medical librarian, compiler and indexer.

INDIANA

State Medical Election.—Dr. Augustus P. Hauss of New Albany assumed the presidency of the Indiana State Medical Association January 1, and Dr. Claude S. Black of Warren became president-elect. Dr. Arthur F. Weyerbacher of Indianapolis is treasurer.

Sewage Treatment Plants.—Eighty-nine Indiana cities and towns are planning sewage plants or additions to existing facilities to cost $47,000,000. Under the program 95 per cent of the state's urban population will be included in the areas where treatment is provided.

Set Date for Centennial Meeting.—The centennial celebration of the Indiana State Medical Association will be held September 26-29 at Indianapolis. Dr. J. Neill Garber of Indianapolis is chairman of the committee on arrangements. An extensive program will be developed.

MARYLAND

New Department of Biophysics.—Five scientists have been named to faculty posts in a new Johns Hopkins University department of biophysics, now called the Jenkins Department of the university in honor of the late Thomas C. Jenkins. Dr. Haldan K. Hartline, professor of biophysics and chairman of the new department, is a graduate of Johns Hopkins University, a former fellow of the National Research Council in medical sciences and from 1936 to 1940 and from 1942 to the present was on the faculty of the University of Pennsylvania. Others named are John P. Hervey, M.S., Martin G. Larrabee, Ph.D., Frank Brink Jr., Ph.D., and Philip W. Davies. Dr. Larrabee and Mr. Davies are associate professors, and Dr. Brink and Mr. Hervey assistant professors. All of the new appointees are at the University of Pennsylvania, where they have been working with Dr. Bronk in biophysics. Dr. Bronk became president of Johns Hopkins University January 1.

MISSOURI

Honor Bulletin Editor.—The Council of the Greene County Medical Society recently honored Dr. Paul F. Cole, Springfield, founder of the society's *Bulletin*, past president and for twenty-seven years an active member, by elevation to honor membership. Dr. Cole founded the *Bulletin* in 1942 to keep members at home and at war informed of local activities. He relinquished the editorship in 1947 but served in an advisory capacity until his retirement last June.

NEW JERSEY

Dr. Winnek Dies.—Philip S. Winnek, Ph.D., who when research chemist for the American Cyanamid Company in Stamford, Conn., played a part in the development of sulfadiazine and sulfaguanidine, died in the Morristown Memorial Hospital December 18, aged 40.

Meeting on Tumors.—The New Jersey Oncological Society will hold a panel discussion January 11 at 9 p. m. at St. Michael's Hospital, Newark. Subjects under discussion will be "The Biologic Aspects of Neoplasms," "The Effect of Nutrition on Rous Chicken Sarcoma," and "Comparison of Rous Chicken Sarcoma to Human Neoplasia." Membership is open to doctors of New Jersey interested in the study of tumors and in good standing in their local county medical society.

NEW YORK

Society News.—The Medical Society of the State of New York with the cooperation of the New York State Department of Health has arranged the following lecture for the Jefferson County Medical Society January 13, 8:30 p. m. at the Hotel Woodruff in Watertown. Dr. Albert J. Ritzmann, New York, will speak on "Disorders of the Thyroid Gland: Diagnosis and Management; Use of Thiouracil."

Increase State Aid to Crippled Children.—Beginning January 1 state aid to general and convalescent hospitals for rehabilitation of physically handicapped children was increased from $750,000 to $900,000 a year. The maximum daily rate for care of children in general hospitals was increased from $6.25 to $8.50, with the state paying half. New York City will pay the other half for its residents, and upstate the county will pay it. Maximum daily rate for care of children in convalescent hospitals is increased from $5 to $6 a day. During 1947 the number of physically handicapped children including spastics, paralytics and amputees cared for in hospitals with state aid was 5,600. Most of those assisted are under 21 years of age, but a small number of persons over that age who have suffered from poliomyelitis are eligible for treatment.

New York City

Fourth Harvey Lecture.—Dr. Carl F. Schmidt, professor of pharmacology, University of Pennsylvania School of Medicine, Philadelphia, will deliver the fourth Harvey Lecture of the current series at the New York Academy of Medicine on January 20, on "Quantitative Measurement of Cerebral Blood Flow in Man."

New York University Doctors Receive Army-Navy Award.—The Certificate of Appreciation, a joint U. S. Army-Navy award for "patriotic civilian service," was recently presented to three New York University College of Medicine faculty members: Dr. William S. Tillett, chairman of the department of medicine; Dr. Colin M. MacLeod, chairman of the department of microbiology, and R. Keith Cannan, D.Sc., chairman of the department of chemistry.

Salmon Memorial Lectures.—Dr. Stanley Cobb, Bullard professor of neuropathology at Harvard Medical School since 1926, has been selected the Salmon Memorial Lecturer for 1949. Dr. Cobb has been psychiatrist in chief of the Massachusetts General Hospital for the last fifteen years. The Salmon Committee on Psychiatry and Mental Hygiene, appointed by the New York Academy of Medicine, has selected as the lecturer each year since 1932 a specialist who has made some outstanding contribution.

Panel Discussions for General Practitioners.—Five panel discussions in medicine and surgery to aid the general practitioner will be held at the New York University-Bellevue Medical Center beginning January 26 and extending through May 25. Questions from the floor will play a prominent part in each session. Sponsored by the Alumni Association, New York University College of Medicine, the panels will make available to doctors of the Greater New York Area, without cost, the experience of more than twenty faculty members of the College of Medicine, Cornell Medical School and the Columbia University College of Physicians and Surgeons. All sessions will be held from 8:30 to 10 p. m. Admission will be by card, and arrangements are under the direction of Dr. William Goldring, chairman, Committee on Science and Education, Alumni Association, New York University College of Medicine. The schedule is as follows:

Jan. 26, Arthritis. Moderator, Currier McEwen; Richard H. Freyberg, Edward F. Hartung and Otto Steinbrocker.
March 2, Hypertension. Moderator, Herbert Chasis; George A. Perera, William Goldring, J. William Hinton and Homer W. Smith.
March 30, Peripheral Vascular Diseases. Moderator, Ludwig W. Eichna; Wallace B. Murphy, Emanuel M. Papper, and Julius J. Sachs.
April 27, Congenital Heart Disease. Moderator, Clarence E. de la Chapelle, with Janet S. Baldwin, Charles S. Kossmann, Herbert C. Maier and Henry K. Taylor.
May 25, Antibiotics. Moderator, Colin M. MacLeod.

Seminar on Venereal Disease.—A panel of specialists in the diagnosis and treatment of syphilis and gonorrhea will conduct a seminar on venereal disease at the New York City Department of Health, which begins January 15, and will continue weekly thereafter through April 30. Meetings will be held at 10:30 a. m. in the second floor auditorium of the health department, 125 Worth Street, Manhattan. Attendance will be open to physicians, nurses, social workers, laboratory personnel, teachers and others concerned with the control of venereal disease. The lecture schedule follows:

Jan. 15, Evan W. Thomas, Modern Treatment of Early Syphilis.
Jan. 22, Adolph Jacoby, Treatment of Gonorrhea.
Jan. 29, Borris A. Kornblith, Treatment of the Minor Venereal Diseases.
Feb. 5, Richard C. Arnold, Serodiagnosis of Syphilis.
Feb. 12, Holiday.
Feb. 19, Alfred Cohn, Diagnostic and Immunologic Aspects in the Field of Venereal Disease.
Feb. 26, Joseph E. Moore, Office Management of the Patient with Syphilis.
March 5, Samuel S. Paley, Cardiovascular Syphilis.
March 12, Norman R. Ingraham Jr., Philadelphia, Syphilis in Pregnancy.
March 19, Bernard I. Kaplan, Latent and Late Syphilis.
March 26, E. Gurney Clark, The Physician as an Epidemiologist in Venereal Disease.
April 2, Frank C. Combes, Differential Diagnosis of Early Syphilis.
April 9, Dabney Moon-Adams, Congenital Syphilis.
April 16, William Leifer, Ambulatory Treatment of Syphilis.
April 23, Bernhard Dattner, Syphilis of the Central Nervous System.
April 30, Milton Helpern, Syphilis and Sudden Death.

PENNSYLVANIA

The Donora Disaster.—Dr. Clarence A. Mills, head of the Experimental Medicine Department at the University of Cincinnati College of Medicine, on returning from his third visit to investigate the recent Donora situation stated that the Borough Council at his suggestion has undertaken a house to house survey in that community which at the time of his preliminary report had included 7,670 of the town's 13,500 citizens. The situation at Donora on October 30 is suspected of being caused by fumes from a zinc smelter. Dr. Mills said that more than 5,000 of the inhabitants are being found affected by the October 30 poisoning smog in addition to the 20 human deaths and some 800 animals killed.

Philadelphia

Grants for Psychiatric Training.—The Woman's Medical College has received $37,302 as a grant under the National Mental Health Act for developing psychiatric training for undergraduate medical students. The funds will be made avialable for the school year 1949-1950 and will be paid in annual allotments over a three year period.

TENNESSEE

Oak Ridge Institute of Nuclear Studies.—Dr. Marshall H. Brucer, assistant professor of physiology at the University of Texas School of Medicine, Houston, has been appointed chairman of the Medical Division of the Oak Ridge Institute of Nuclear Studies to direct the cancer research program and the training of medical and research personnel. Russel S. Poor, Ph.D., dean of the Graduate School of Alabama Polytechnic Institute, Auburn, was also recently named chairman of the University of Tennessee Relations Division of the institute. Both men assumed duties January 1. The institute program, which will be housed in a section of the Oak Ridge Hospital, will have facilities for treating a limited number of patients who will be drawn from twenty Southern medical schools which are participating in the program. Patients will be admitted only through special committees set up at the cooperating medical schools. It will be some months before patients can be accepted. Dr. Brucer is a graduate of Northwestern University Medical School, Chicago, 1942. He served as surgeon in the Airborne Command at Camp Mackall, N. C., for two and a half years during the late war, after which he was on the medical staff of Bruns General Hospital (U. S. Army) in Santa Fe, New Mexico. He joined the University of Texas Medical School after his release from the Army in 1946.

VIRGINIA

The Stoneburner Lecture.—Dr. Eugene A. Stead Jr., professor of medicine, Duke University School of Medicine, Durham, N. C., will deliver the Lewis T. Stoneburner III Lecture at the Medical College of Virginia, Richmond, January 14. This lectureship was established at the college last year by friends who were members of the 45th General Hospital with Capt. Stoneburner, an honor graduate in medicine at the college in the class of 1937, who lost his life in World War II.

WISCONSIN

Convocation Speaker.—Dr. Oscar G. Moland, Augusta, will speak at the convocation of the University of Wisconsin Medical School, Madison, January 12 at 4 p. m. in the Service Memorial Institutes Building. His subject will be "From the Viewpoint of the Country Physician." Dr. Moland is a graduate of the university, 1935.

Broadcast Postgraduate Programs.—The University of Wisconsin Medical School, Madison, will use the frequency modulation facilities of the university's radio station WHA in presenting from time to time conferences, symposiums and medical lectures focused primarily for the medical practitioner of Wisconsin. Arrangements for programs and provision for local frequency modulation reception will be made with county medical societies. This is believed to be the first time that scientific medical material has been broadcast by a medical school through a state owned university radio station. The first program concerning the human back will probably be given in February.

GENERAL

Board of Ophthalmology.—The American Board of Ophthalmology wishes to make known that it does not evaluate, approve or disapprove any ophthalmic residency as fulfilling the requirements for candidates for board examinations. Any candidate who qualifies for the board examination and completes the prerequisites as outlined in the syllabus will be accepted. A copy of the syllabus can be obtained from the secretary of the American Board of Ophthalmology, 56 Ivie Road, Cape Cottage, Maine.

Southeastern Allergy Meeting.—The annual meeting of the Southeastern Allergy Association will be held at the Washington-Duke Hotel, Durham, N. C., January 22-23. Dr. George E. Rockwell, Milford, Ohio, president of the American College of Allergists, and Dr. Walter Winkenwerder, Baltimore, president of the American Academy of Allergy, are to be guest speakers. A panel on "Infectious Asthmas," headed by Dr. Oscar Swineford Jr., Charlottesville, Va., and a panel on "Food Allergies," headed by Dr. Hal M. Davison, Atlanta, Ga., are on the program. For information address Dr. Katharine B. MacInnis, Secretary, 1515 Bull Street, Columbia, S. C.

Posing as a Doctor.—A man using the name of Paul Lambert is presumably posing as a doctor, according to the Bureau of Police of Philadelphia. He is about 31 years old, 5 feet 9½ inches (176.5 cm.) tall, weighs 125 to 130 pounds (56.7 to 59 Kg.), has dark brown hair parted on left side, wears steel-rimmed glasses, has a cast in one eye and a small dark mustache. He has succeeded in obtaining sums of money to be invested in a South American business venture. He claims to be a resident or a native of Brazil and an undercover liaison officer between the United States and Brazil. Anyone knowing the whereabouts of this imposter should notify the Bureau of Police, Philadelphia 7.

Conference on Medical Service.—The National Conference on Medical Service will be held at the Palmer House, Chicago, February 6. The program is as follows:

Chris J. D. Zarafonetis, Ann Arbor, Mich., and George E. Wakerlin, Chicago, Legalized Medical Research.
Frank Calderone, New York, Progress of the World Health Organization.
Creighton Barker, New Haven, Conn., Progress of the World Medical Association.
Warren F. Draper, Washington, D. C., Medical Program of the United Mine Workers of America Welfare and Retirement Fund.
Mr. James D. Boyle, What's Happening in Washington This Week, followed by a discussion to be opened by Joseph S. Lawrence.
George N. Aagaard, Minneapolis, Minn., Charles W. Smith, Harrisburg, Pa., and Harold I. Goldman, Denver, Panel discussion: Postgraduate Education of the Doctor.
Wilbur Bailey, Los Angeles, Can Corporations Such as Hospitals Legally Engage in the Practice of Medicine?

The luncheon speaker will be Dr. George F. Lull, Secretary and General Manager, American Medical Association, Chicago.

Annual Meeting of Society for Surgery of the Hand.—The American Society for Surgery of the Hand will meet at Thorne Hall, Northwestern University, Chicago, January 21-22. Those speaking by invitation are Drs. Joseph L. Posch, Detroit, "Primary Nerve and Tendon Repair" and Frederick L. Liebolt, New York, "Arthroplasty for Ankylosis of the Metacarpophalangeal Joint." Other speakers will be:

Vinton E. Siler, Cincinnati, Tenorrhaphy.
R. Sterling Mueller, New York, Treatment of Severed Flexor Tendons in the Flexor Tendon Sheaths of the Fingers.
J. Edward Flynn, Boston, Acute Suppurative Tenosynovitis of the Hand.
George S. Phalen, Cleveland, Median Nerve Neuritis.
Lt. Col. Gilbert L. Hyroop, Phoenixville, Pa., Plastic Repair of the Cleft between the Thumb and Index Finger.
Lot D. Howard Jr., San Francisco, Thumb Web Contracture.
J. William Littler, New York, Adduction Contracture of the Thumb.
Julian M. Bruner, Des Moines, Ia., Dupuytren's Contracture.
William Metcalf, Hines, Ill., Skeletal Reconstruction in the Hand.
W. Brandon Macomber, Albany, N. Y., Relationship of Superficial and Deep Reconstructive Surgery of the Hand.
Thomas W. Stevenson, New York, Xanthoma of the Hands.
Sumner L. Koch, Michael L. Mason and Harvey S. Allen, Chicago, Presentation of Cases.

PUERTO RICO

Discuss Need for Medical School.—For the first time in Puerto Rico, the need of a medical school for the island was discussed by experts in a round table at the School of Tropical Medicine in San Juan, December 6. At the annual convention of the Puerto Rico Medical Association five doctors and the chancellor of the University of Rio Piedras met with doctors from the United States, Cuba and the Dominican Republic. Dr. Herman Weiskotten, dean of the University of Syracuse Medical School, said that the minimum cost of a small school would be from $400,000 to $500,000 a year, to say nothing of the additional expense for the school hospital. Other speakers were Commissioner of Health Juan A. Pons, who favored early establishment of the school; Dr. Oscar Costa Mandry, who four years ago made for the university a survey of American institutions in connection with the possibility of establishing a medical school in Puerto Rico; Dr. Guillermo Arbona and Dr. Enrique Koppisch, who was also the participant to come out definitely against the school. Chancellor Jaime Benitez declared that the conditions described by Dr. Koppisch made the need for a medical school "only more pressing."

Marriages

William Francis Maguire, Charleston, S. C., to Miss Dorothy Eileen Bennett, of Holly Hill, October 30.

Earle Sinclair McKey Jr., Valdosta, Ga., to Miss Martha Augusta Wiseman of Adel, October 23.

Joseph Cooper Collins to Miss Marjory Joan Hubbard, both of San Francisco, September 18.

Charles Harrison Wiygul to Miss Frances Allen Varner, both of Fairfield, Ala., October 30.

Max L. Salvater to Miss Laura Kraemer, both of Sacramento, Calif., October 9.

Kathleen Byers to Mr. William John Lindsey, both of Atlanta, September 10.

Deaths

William Augustus Evans, Aberdeen, Miss., formerly health commissioner of Chicago, died on a plantation near Muldon, Miss., November 8, aged 83, of heart disease. Dr. Evans was born in Marion, Ala., Aug. 5, 1865. He received his medical degree from the Medical Department of Tulane University of Louisiana, New Orleans, in 1885, and later moved to Chicago, where from 1891 to 1895 he was demonstrator of pathology and from 1895 to 1908 professor at the College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois. In 1908 he joined the faculty of Northwestern University Medical School in Chicago, where at the time of his death he held the title of professor of public health emeritus. He was a member of the American Medical Association and in 1902 and in 1912 a member of the House of Delegates, a president of the Chicago Medical Society in 1902-1903, and of the American Public Health Association in 1916-1917. In 1907 he became health commissioner of Chicago, serving until 1911, when he resigned to become health editor of the *Chicago Daily Tribune*, where for twenty-three years he conducted the column on "How to Keep Well." He was a member of the board of medical advisors of the Illinois Department of Health, a member of the advisory committee of the Chicago Health Department and on the staffs of the Wesley Memorial, Cook County and Alexian Brothers hospitals in Chicago. He received LL.D. degrees from Tulane University in 1910 and the University of Mississippi in 1921 and a doctor of public health degree from the University of Michigan, Ann Arbor, in 1911. Dr. Evans presented his home town of Aberdeen with a library of some 15,000 volumes and 10,000 manuscripts as a memorial to the Evans family, which for generations lived in that section of the state. He also restored the old home of Jefferson Davis, "Beauvoir," in Biloxi, Miss., converting it into a public building now maintained by a Davis memorial association.

William Stoutenborough Terriberry ✠ Medical Director, U. S. Public Health Service, retired, Old Lyme, Conn.; born in Paterson, N. J., July 3, 1871; Columbia University College of Physicians and Surgeons, New York, 1896; veteran of the Spanish-American War; a lieutenant colonel in the medical corps of the New York National Guard; served in the Mexican border campaign of 1916; served during World War I; entered the public health service as a senior surgeon in the reserve corps in 1919 and later was made assistant surgeon general; his assignments included acting as supervising officer for immigration along the Canadian border; commissioned medical director in the regular corps in 1930, served as director of Public Health Service District number 1, New York, and as medical officer in charge, U. S. Marine Hospital, Buffalo; retired from the service in 1937; received the Conspicuous Service Cross in 1922; at one time on the staff of the Bellevue Hospital in New York; died in the U. S. Coast Guard Academy Hospital, New London, October 13, aged 77, of arteriosclerotic heart disease.

Voyle Musser James ✠ Los Angeles; born in Salt Lake City, Jan. 30, 1899; University and Bellevue Hospital Medical College, New York, 1924; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology, American College of Allergists and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; past president of the Hollywood Academy of Medicine; affiliated with the Children's, Cedars of Lebanon and the Presbyterian Hospital–Olmsted Memorial in Los Angeles and the Glendale (Calif.) Sanitarium and Hospital; died October 17, aged 49, of coronary disease.

Charles Edward Futch ✠ Los Angeles; born in Cleveland, Jan. 23, 1898; University of Michigan Medical School, Ann Arbor, 1923; assistant professor of otolaryngology at the College of Medical Evangelists; specialist certified by the American Board of Otolaryngology; member of the Pacific Coast Oto-Ophthalmological Society and the Los Angeles Society of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons and the International College of Surgeons; served during World Wars I and II; on the staffs of St. Vincent's, Queen of Angels and White Memorial hospitals; died October 24, aged 50.

Charles Vernon Crane ✠ Grand Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians and member of the American Heart Association, American Diabetes Association and National Gastroenterological Association; served during World War I; affiliated with Blodgett Memorial, St. Mary's and Butterworth hospitals; died October 10, aged 66, of coronary thrombosis.

William Frederick Doolittle, Cleveland; Western Reserve University Medical Department, Cleveland, 1898; died in Lakeside Hospital October 23, aged 76, of brain abscess.

Eli Hamlin Dunn, Kansas City, Mo.; Rush Medical College, Chicago, 1885; died September 30, aged 90, of senility.

Walfred August Engstrom, Huntington Park, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1944; member of the American Medical Association; certified by the National Board of Medical Examiners; interned at the Los Angeles County Hospital; affiliated with the Mission Hospital, Huntington Park, St. Francis Hospital, Lynwood and the Bell Mission Hospital in Bell; died in Los Angeles October 22, aged 40, of injuries received when struck by an automobile.

Albert Wilford Goodale, Orland, Ind.; University of Buffalo School of Medicine, 1907; died in Los Angeles September 10, aged 75.

Harvey H. Hartley, Goldendale, Wash.; University of Oregon Medical School, Portland, 1900; served as county health officer, postmaster and president of the chamber of commerce; drowned September 10, aged 77.

John William Ottoway Henley, Kansas City, Mo.; Meharry Medical College, Nashville, Tenn., 1919; died in San Diego, Calif., recently, aged 52, of cerebral thrombosis.

Carl F. W. Lippe, Newark, N. J.; University of Georgia Medical Department, Augusta, 1897; died recently, aged 78, of uremia and arteriosclerosis.

Leon Dudley Long ✠ Seattle; the Hahnemann Medical College and Hospital, Chicago, 1907; affiliated with the Virginia Mason Hospital, where he died recently, aged 66, of myocardial infarction.

William E. Morris, Shelbyville, Ky.; Bellevue Hospital Medical College, New York, 1890; member of the American Medical Association; died in King's Daughters' Hospital September 27, aged 84, of carcinoma of the prostate.

Adolph Jacob Osterman, Mount Vernon, Wash.; Gross Medical College, Denver, 1896; member of the American Medical Association; served during World War I; died recently, aged 80, of metastatic carcinoma of the lungs.

Rudolph Emanuel Pick ✠ New York; University and Bellevue Hospital Medical College, New York, 1903; consultant on the staffs of the Metropolitan and Flower and Fifth Avenue hospitals; died in the Nathan Littauer Hospital, Gloversville, September 21, aged 66, of fracture of the femur.

John Irving Pinckney, Providence, R. I.; University of Vermont College of Medicine, Burlington, 1906; member of the American Medical Association; for many years executive secretary of the Providence Tuberculosis League; formerly affiliated with the Michigan State Board of Health; at various times on the staffs of the Western Maine Sanatorium in Hebron, Westfield (Mass.) State Hospital and the Rhode Island Hospital; died in the Jane Brown Memorial Hospital, October 16, aged 69, of coronary thrombosis.

Julius Thomas Pitts, Newborn, Ga.; Atlanta Medical College, 1895; member of the American Medical Association; retired minister; died September 21, aged 76.

Ernest Rose, San Marcos, Texas; University of Oklahoma School of Medicine, Oklahoma City, 1936; member of the American Medical Association; served during World War II; died recently in Brooke General Hospital, Fort Sam Houston, aged 49, following an operation for brain tumor.

William Frederic Singer ✠ Pueblo, Colo.; Syracuse University College of Medicine, 1896; on the staffs of Parkview and St. Mary's hospitals; died October 25, aged 78.

James C. Spell, Titusville, Fla.; University of Louisville (Ky.) Medical Department, 1906; also a pharmacist; died in the Eugene Wuesthoff Memorial Hospital, Rockledge, September 16, aged 73, of heart disease.

Lynn D. Stewart ✠ Payson, Utah; Northwestern University Medical School, Chicago, 1911; at one time mayor; served during World War I; on the staff of Payson City Hospital; died September 22, aged 61, of coronary thrombosis.

Benjamin Mortimore Stout ✠ Morgantown, W. Va.; Jefferson Medical College of Philadelphia, 1921; past president of the Monongalia County Medical Society; on the staff of Monongalia General Hospital; died September 27, aged 56, of coronary occlusion.

Ernest Clifford White, Chicago; Dunham Medical College, Chicago, 1902; served during World War I; medical director of Alexian Brothers Hospital, where he died October 14, aged 69, of coronary thrombosis.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 20, 1948.

The Working of the National Health Service

The working of the National Health Service brings to light many drawbacks which might have been expected when the practice of medicine became state controlled, i. e., socialized. The glittering promises of large incomes is found to depend on a doctor's having a large list, up to 4,000 possible patients. In times of stress he is overworked and cannot properly investigate his serious cases. Much of his time is taken up with the clerical work of signing certificates and the other innumerable forms which bureaucracy has inflicted on him. Doctors practicing in sparsely populated areas or in rich suburban areas have suffered large losses of income. The number of inhabitants can give them only a limited list of National Health patients, whose capitation fees are only a small fraction of the sums previously paid for private attendance. In some cases the loss of income is stated to be as much as 50 per cent. No matter how much illness a well to do patient has in the year it is covered by the capitation fee of about $3.50.

Such abuses of the service as the following occur. Three doctors have written to the *British Medical Journal* stating that patients who on arrival found a queue in front of them at the office were unwilling to wait, returned home and telephoned for a visit. In another case a patient telephoned that he had a high temperature in order to obtain a visit, although his temperature was normal. In still another case a woman sent a message after 1 p. m. for a visit. But she was so well that three visits had to be paid to her house before she was found at home.

The proposal has been made that the maximum of 4,000 patients on a doctor's list should be reduced to 2,500 and the capitation fee increased to $8. Already the cost of dental treatment has proved to be more than double the estimate. The Minister of Health stated that he wanted to take money out of the doctor-patient relation. That is evidently going to be an expensive matter for the taxpayer. Similarly his colleagues state that they want to take the profit motive out of production. In the industries taken over by the state they certainly have accomplished this. No profits, but losses—at the expense of the taxpayer—have been made. Similarly "taking money out of the doctor-patient relation" is going to be an expensive matter for the state—much more expensive than was calculated. The medical profession does not reap a corresponding benefit, because of the enormous waste involved, waste of time and material, as shown in a previous letter. A crowning bit of extravagance may be mentioned. Foreigners who come to this country are to be entitled to free medical attendance at the public expense for the first two months.

Organized Opposition: Lord Horder's Criticisms

The opposition of a section of the British Medical Association, led by Lord Horder, to acceptance of the Health Service has been reported in previous letters to THE JOURNAL. A new organization, called the Fellowship for Freedom in Medicine, was formed at a meeting in London which was attended by 673 doctors from all parts of the country. Lord Horder was elected chairman. In his opening speech he outlined the collapse of the British Medical Association's resistance to the Act. "We are no longer experts," he said. "We sit and sign forms. With no time to diagnose diseases we pass out patients to other persons and to institutions, knowing full well that they cannot dispense the health benefits which may or may not be needed." He suggested that a guild be formed. The old city guilds stood for a high standard in regard to the craft they pursued and took powers to preserve it in the public interest as well as in their own.

The meeting passed three resolutions covering its aims. The first dealing with its relations to existing bodies pointed out that it was in no way opposed to other organizations. The second affirmed its determination to maintain the highest possible standards of medicine in the future. The third was to the effect that the committee should consider ways and means in which freedom in medical matters could be preserved in the profession. Ten members of an executive committee were elected. Another ten will be chosen with the object of having a wide representation over the country as possible. So far, 1,750 letters have been received from members of the profession dissatisfied with the national health scheme, though no general appeal to the profession has been made. Letters are coming in at the rate of 30 a day.

Protest Against Soviet Tyranny Over Science

Sir Henry Dale, F.R.S., the eminent pharmacologist, has resigned his honorary membership in the Academy of Sciences of the U.S.S.R. In his letter to the President he points out that in 1942, the year in which he was elected to the Academy, the Royal Society of London elected Nicholas Vavilov to be one of its fifty foreign members. As first director of the Lenin Academy of Genetics, Vavilov was reputed to be of great assistance to agriculture in the Soviet Union. But for some unknown reason, possibly political, he fell out of favor with those who followed Lenin. Not till 1945 did the Royal Society discover that he had been dismissed and had disappeared with a number of co-workers in genetics at some unknown date between 1941 and 1943. Repeated inquiries addressed to the Russian Academy by the Royal Society asking only the date and place of his death received no reply. It is now clear what happened. Vavilov has been replaced by T. D. Lysenko, the advocate of a doctrine of evolution which, in effect, denies all progress since Lamarck's speculations appeared early in the nineteenth century. This is not the result of an honest and open conflict of scientific opinions. Lysenko's own statements show that his dogma has been established and enforced by the Central Committee of the Communist Party as conforming to the political philosophy of Marx and Lenin. Decrees of the Academy show only too clearly the political tyranny which exists. The distinguished neurophysiologist L. Orbeli, of the school of the great Pavlov, was dismissed from the secretaryship of the Department of Biological Sciences because he had failed to anticipate the decrees restricting all teaching in genetics to the politically imposed orthodoxy. Since Galileo many attempts have been made to suppress scientific truth. None have been a success; the last was Hitler's. Dale concludes that he cannot continue an association which might appear to condone such tyranny.

Dr. J. H. Sequeira

Dr. James H. Sequeira, a leading dermatologist, died in Kenya at the age of 83 years. After qualifying he decided to become a dermatologist and visited Vienna and Copenhagen for postgraduate study. In the latter capital he worked under Finsen, who was engaged in his pioneer researches on light baths in the treatment of cutaneous tuberculosis. In 1901 Sequeira translated Finsen's book on phototherapy and returned to the London Hospital, his medical school, to carry out the new methods in the recently established light department, the first in this country. In the same year he was the first in this

country to report on the treatment of cancer of the skin by roentgen rays and radium. He published his treatise on "Diseases of the Skin" in 1911. It reached a fourth edition in 1927 and was translated into Spanish in 1926. A prolific writer, he for many years edited the *British Journal of Dermatology & Syphilis.*

On retiring from the active staff of the London Hospital in 1927 he went to Kenya, where he was president of the Kenya Branch of the British Medical Association and editor of the *East African Medical Journal.* His African experiences were embodied in his Chadwick lecture in 1932, on "The Educational Aspects of Public Health in the Tropics." During the first great war he was consultant in dermatology to the military hospitals of London. He was president of the Dermatological Section of the Royal Society of Medicine (1925 to 1927) and corresponding member of the French and Danish dermatological societies.

GREECE

(From a Special Correspondent)

ATHENS, Dec. 2, 1948.

Public Health Program in Greece

The Economic Cooperation Administration, recognizing the necessity of improving standards of public health and medical care as essential to economic recovery, has embarked on a huge hospital, health center and sanitation program and plans a reorganization of the health services of Greece. Funds have also been made available for sending selected Greeks to the United States for training and to send specialists to Greece from the United States and other countries participating in the Economic Cooperation Administration.

The Public Health Division of the Economic Cooperation Administration Mission, under the direction of Dr. O. F. Hedley of Richmond, Va., a medical director of the U. S. Public Health Service, is composed for the most part of commissioned officers of the service or specialists recruited by the service for the Economic Cooperation Administration. The Public Health Division consists of five medical officers, three sanitary engineers, three public health nurses, one hospital administrator, one hospital architect, two medical supply experts and one civil engineer. Altogether the division includes nineteen Americans, one British supply expert and twenty-four Greeks, several of whom are in professional or subprofessional categories.

The medical officers in addition to Dr. Hedley are Senior Surgeon Leslie W. Knott of San Francisco; Senior Surgeon (R) Paul A. Lindquist of Kansas City, Kan.; Surgeon (R) Paul F. Holland of Alexandria, Va., and Surgeon (R) Fred W. Love of Delray Beach, Fla., all of whom are assigned to the Greek Mission by the Public Health Service.

Construction of Hospital and Health Facilities

Approval has been granted by the Economic Cooperation Administration in Paris and Washington and by the Government of Greece for the construction of hospital and health facilities during the current fiscal year in the amount of $10,234,000 in foreign exchange and drachmae equivalents and the importation of $1,450,000 worth of sanitation supplies and equipment. Over $70,000 has been earmarked for training purposes. In addition, the Economic Cooperation Administration has allocated $2,000,000 in local currency to meet the local construction costs of the hospital and health center program of the Greek War Relief, which amounts to over $10,000,000. The Public Health Division also has supervision over the importation of $2,950,000 worth of medical and sanitation supplies for the Greek Ministry of Hygiene and furnishes technical assistance in the importation of $6,000,000 worth of commodities for the trade. An amount of $300,000 has been made available for medical and sanitation supplies for refugee relief.

Nursing School

Project agreements in the amount of $7,400,000 have been signed and construction has been started on a dormitory for the Athens Red Cross School of Nursing and two medical and sanitation supply warehouses. The current year's program includes the construction of a school of nursing in Salonica, a dormitory for nurses in Athens, two medical and sanitation supply warehouses, the completion of the Athens Maternity Hospital started before the war and a dormitory for midwives, repairs and equipment for the School of Hygiene and a modest amount for the University of Athens and Salonica medical schools, the completion of six general hospitals and the completion of four public health centers. Most of the buildings which will be completed were begun or projected before the war. In addition a number of buildings will be repaired or completed from the special drachmae accounts of the mission or funds in the Greek budget; these will require no dollar expenditures.

Safe Water Supplies

The sanitation program, which amounts to $1,450,000, will consist primarily in furnishing safe water supplies to a number of small communities. Water and sewerage facilities for the larger towns are included in the public works program. The success of this program depends largely on obtaining pipe, which seems to be universally in short supply.

One of the greatest needs in Greece is for more trained nurses. On the basis of the latest figures of the Ministry of Hygiene, there are now 542 graduate nurses practicing their profession in Greece. This is approximately a ratio of 1 nurse to 14,000 population, as compared with 1 to 500 in the United States and United Kingdom. The objective of the mission, with the cooperation of the Greek War Relief Association, is to provide 300 graduates annually. Since this cannot be attained immediately several one year schools will be provided, and an inservice training program for the practical nurses now on duty has been begun. New technical motion pictures from the United States play an important role in the nurse-training program and are an integral part of the program.

Medical Education

The Medical Schools of the Universities of Athens and Salonica have suffered extreme deterioration because of the war. Many of these buildings have been requisitioned for military hospitals. Furthermore, the number of students has increased beyond all possible needs of the country. Under the four year plan it is hoped to refurbish the building and reequip the laboratories and clinics, at least partially, and to reduce the "academic inflation." The School of Hygiene, established by the Rockefeller Foundation for the training of health officers, will also be repaired and furnished substantial equipment.

Tuberculosis

Tuberculosis is the outstanding health problem affecting Greece at the present time. The mortality from tuberculosis is approximately 250 per 100,000 population, and there are less than 5,000 sanatorium beds. Bone and joint tuberculosis is especially common. The mission is assisting the International Childrens' Emergency Fund and the Scandinavian Red Cross Affiliates in a BCG program which should bring ten teams to Greece in early 1949. Under the four year plan it is hoped to provide about 9,000 additional sanatorium beds.

Correspondence

PENICILLIN THERAPY

To the Editor:—The article "Acute Exfoliative Dermatitis and Death Following Penicillin Therapy," by Drs. J. Rabinovitch and M. C. Snitkoff (THE JOURNAL, October 16, pp. 496-498) implicated penicillin as the cause of death in the case reported, despite failure to perform an autopsy. A white woman aged 72 was operated on for a "gangrenous and perforated appendix." The peritoneal cavity was found to contain "free turbid fluid" which yielded a nonhemolytic streptococcus. Penicillin was administered for eleven days. Eighteen days after penicillin was begun, pruritus was noted, then a maculopapular rash, followed by fever. She was given several drugs, but the course was progressively downhill. The skin began to exfoliate, large bullae were formed, ulcerations of the mouth developed and acute conjunctivitis was noted. Death followed thirteen days after the first appearance of the eruption.

I should like to report a case similar in many respects. Until a necropsy, this was considered to be a drug eruption with penicillin in the list of offenders. The autopsy, however, revealed an extensive retroappendical abscess. This patient was seen at the University Hospital in Minneapolis in May 1947. A white man, aged 44, had a history of constant pain in the right side of the chest, of five weeks' duration. Three weeks prior to admission he had received penicillin, streptomycin and sulfaguanidine. One week prior to admission an erythematous rash had developed, which became bullous over the face and trunk. The skin became loose and was separated in sheets. The Nikolsky sign was positive. On admission the temperature was 104 F., pulse rate 142, blood pressure 110 systolic and 80 diastolic. In addition to the eruption, there was a purulent urethral discharge and a purulent conjunctivitis. The mouth revealed superficial ulceration. The hemoglobin was 11.4 Gm., leukocyte count 9,400, with 80 per cent polymorphonuclear cells. The sedimentation rate was 63 mm. per hour, by the Westergren method. The tentative diagnosis was drug eruption (bullous erythema multiforme of the Stevens-Johnson type). Blood transfusions and other supportive measures were employed, but the patient became comatose and died a few days after admission. Postmortem examination revealed, in addition to the dermatologic changes, silicosis and an extensive retroappendical abscess. The death could not therefore be attributed to penicillin; the evidence for penicillin as the cause of death in Drs. Rabinovitch and Snitkoff's case seems to be questionable.

JOHN R. HASERICK, M.D.,
Dermatology Department, Cleveland Clinic.

JAPANESE MEDICAL ASSOCIATION

To the Editor:—I wish to acknowledge with gratitude the receipt of a valued book on the history of the American Medical Association. I assure you that the volume will be a fine addition to our library, to which all our members have free access.

Not long ago your Association kindly sent to us a group of medical experts with Dr. Sensenich as its head. These gentlemen offered much useful advice and many suggestions to our medical profession in general and to our officers in particular. We were all much benefited by their association with us even though the time was limited. As President of the Medical Association of Japan I wish to extend to you and to all of your colleagues my sincerest thanks for your good will. May our mutual friendship continue through many years to come, and may our good will keep us encouraged in our humble effort to realize our goal for better medical care for our people.

AKIRA TAKAHASHI, M.D.,
President, Medical Association of Japan.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Volkmann's Paralysis Following Application of Tight Bandage.—The plaintiff sued for damages alleged to have resulted from the negligent conduct of the defendant physician. From a judgment in favor of the physician, the plaintiff appealed to the court of civil appeals of Texas, Galveston.

The plaintiff, a 4 year old boy, while playing piggy-back with his sister, fell about 2 feet to the floor and fractured his left arm just above the elbow. His mother took him to a hospital and was referred to the defendant physician who x-rayed the arm and reduced the fracture. The defendant then bound the arm in a "fully flexed" position with a tight bandage, that is, the left arm was bent so that the forearm was brought as far as it could go against the upper arm and then taped into a cone-shaped position. About 10:15 p. m. the mother discovered that the child's hand was blue and ice cold. She notified the defendant and asked whether or not the bandage could be too tight. The defendant said that the hand was all right and not to worry about it but to bring the boy in for examination the next day. The next day when the parents took the child to the defendant's office, the mother again asked the defendant about the hand being so cold and blue, and the defendant said that he thought the bandage was too tight and "snipped it a little on both sides." About two weeks later the plaintiff's mother asked the defendant why the boy was not able to move his fingers and why his hand looked sort of blue, but was told that there was nothing wrong with the hand. On August 21, over a month after the accident, the mother again called the defendant's attention to the boy's fingers. The defendant then asked her whether the boy had not been able to move his fingers and the mother told him "no" and that she thought the defendant knew. The defendant then said that it looked as if there had been some sort of nerve injury, and he called in a bone specialist. At the trial the defendant was asked, among other things, "Q. If Mrs. Bowles or Mr. Bowles had telephoned you shortly after 10:15 on the night that you set the arm, and reported to you that the hand was ice cold and blue, what would you have done? A. If I had understood that, I would have asked to see the child. I would either come over or had them meet me at the hospital, because there would be no excuse for not seeing a case that had an ice cold hand." Under the state of the pleadings, said the court, the defendant cannot be heard to urge that the plaintiff's mother did not tell him over the telephone what she said she had and it is perfectly obvious that what she told him was very simple and clear and easy to understand. For the purposes of this appeal, therefore, it must be considered that the defendant understood that the child had an ice cold hand and he did not do what he said there was no excuse for his not doing, namely, seeing the child's hand at the time he was given such information. Thus, said the court, the defendant himself furnished the expert medical testimony from which the jury could have inferred that he was guilty of negligence.

A physician's liability, said the court, is measured by the fact that he "merely engages that he has that reasonable degree of learning and skill which is possessed by others of his profession in the same locality, or by the 'average physician under the same or similar circumstances,' and that he will exercise that skill and learning with reasonable care and diligence. . . . Although required to exercise his best judgment in the circumstances, and to look for natural and probable results, if he has exercised ordinary care and diligence he is not responsible for a mistake in judgment nor for the occurrence of unexpected results which reasonably could not have been anticipated." Jurors, the court continued, in the exercise of their mere lay knowledge, cannot determine whether a phy-

sician has complied with the standard referred to. In other words, it is incumbent on the plaintiff to show by expert evidence that the defendant's negligence was a proximate cause of the plaintiff's injury, that is, that the negligent manner of treatment caused the subsequent injury to the plaintiff's hand and arm. But we have not been able to find any medical or expert evidence which would have warranted a finding by the jury that any negligence on the part of the defendant was a proximate cause of the paralysis which followed the fracture. The medical evidence bearing on the point of the proximate cause of the contracture or paralysis was that before the fracture was reduced there was no radial pulse in the boy's fractured arm, but after the fracture was reduced the pulse became palpable or noticeable. It was on this evidence that the bone specialist gave as his positive opinion that the injury occurred at the time of the fracture and as a result thereof and before it was reduced, because the circulation was stopped or cut off during the period that the radial pulse could not be found but after the fracture was reduced the circulation was restored. The medical testimony disclosed that a Volkmann's contracture may be caused by traumatic arterial spasms, thrombosis, embolism, perforation or rupture of a blood vessel and that it could have resulted regardless of any treatment given and the opinion of the bone specialist as stated previously was that it probably resulted in this instance from the original injury. There was no medical evidence which would have supported an inference by the jury that, assuming the defendant negligently permitted the arm to remain bandaged too tightly and thereby cut off the circulation, the defendant's conduct was the probable cause of the paralysis. In other words, the court concluded, there was no medical expert evidence admitted in this case to the effect that the paralysis was probably caused by the bandage applied by the defendant. The jury cannot draw medical conclusions in the absence of expert evidence. In the absence of any showing that the defendant's negligence was the cause of the paralysis in the plaintiff's arm, therefore, the court of appeals affirmed the judgment of the trial court in favor of the defendant physician.—*Bowles v. Bourdon, 213 S. W. (2d) 713 (Texas, 1948).*

Malpractice: Expert Testimony as to Proper Fit of Denture.—The plaintiff dentist filed suit to recover the balance of a fee due him for services in connection with the preparation of upper and lower dentures for the defendant. From a judgment in favor of the defendant, the plaintiff appealed to the Appellate Court of Illinois, Second District.

The plaintiff, a duly licensed dentist who had practiced his profession for more than twenty years, was engaged by the defendant to make an upper and lower set of dentures. The charge for these services was $200, the fairness and reasonableness of which was not disputed. After reducing the amount due to $139 the defendant refused to pay any more.

The plaintiff first contended that the defendant should not have been permitted to testify that the teeth did not fit. The evidence showed that the first lower dentures were unsatisfactory. The plaintiff made another. The defendant said that these also did not fit; that they hurt her and that she was embarrassed when eating and had to leave the table; that the teeth jumped out when she sneezed; that she took them out whenever they hurt her and did not wear them all the time. The defendant's husband testified that she slobbered at the table. Finally, at the close of her testimony, she was asked: "State whether or not these teeth did fit you or not." Over objection of the plaintiff, she was permitted to answer: "They did not fit me." The plaintiff testified that he used the most modern method and exercised the same skill ordinarily used by other dentists in making teeth; that he examined the defendant's mouth before he took the impressions for the teeth and afterward saw the teeth in her mouth and in his opinion they fit her; that when a person sneezes any false teeth plate may come out; that when a person using false teeth sneezes, the plate is loosened and may drop out; that this is no indication that teeth do not properly fit and are not properly made; that both the upper and lower teeth that he made for the defendant were properly made and properly fit her; that persons first using false teeth have some soreness as a rule; that they usually expect to make some adjustment after the teeth are first fitted to the patient's mouth, and the patient having pain does not indicate that the teeth are not properly made and do not properly fit. A licensed dentist who was called as an expert witness on behalf of the plaintiff testified that it is usual for a person who has never worn false teeth before to complain that they hurt from time to time; that in his opinion no part of the body is as tender as the tissues of the mouth; that just a little rub will cause a burn or sore mouth and a dentist has to make adjustments; that the mouth is one of the most tender parts of the body and reacts more to any kind of pressure. He also testified that the teeth in question were showed to him and he stated that the teeth looked well made, that they were in alinement; that sometimes it takes patients years to get used to false teeth and others a very short time.

In considering the plaintiff's contention, the appellate court referred to a Wisconsin decision in which the facts were very similar to those of the present case. In that case the Supreme Court of Wisconsin said: "If the plaintiff performed the dental services for the defendant and did the same in good workmanlike manner in accordance with the recognized and established practice of those in the same profession in his locality, he became entitled to the reasonable value of his services. We must hold in this case that the issue here presented was one on which expert rather than lay evidence was necessary. . . . The testimony of those familiar with that kind of work and services was all one way and to the effect that it was in accordance with the recognized standard of skill in that locality."

It will be noted, said the appellate court, that in the Wisconsin case it was held that whether the teeth fit was for expert testimony and not for the defendant alone to say that they did not fit. The defendant in the present case was allowed without objection to state that the teeth hurt her and were not satisfactory, but we think that whether they actually fit or not was a question for expert testimony, and the jury should decide whether the teeth did fit according to dental standards. The defendant offered no expert testimony on the question. The appellate court accordingly concluded that the trial court erred in permitting the defendant to state that the teeth did not fit her.

The plaintiff also contended that an improper instruction had been given to the jury. This instruction read: "The Court instructs the jury that where the buyer purchases from the seller goods to be manufactured by the seller, and it appears that the seller knows the particular purpose for which the goods are required, and where it appears that the buyer relied on the seller's skill or judgment, then there is an implied warranty on the part of the seller that the goods to be manufactured by the seller will be reasonably fit for such purpose." The point made by the plaintiff is that the sale of dentures by a practicing dentist is not the sale of tangible personal property. This question was discussed by the Supreme Court of Illinois in a case in which the question arose as to whether or not the retailer's occupation tax act applied to optometrists and the furnishing of tangible personal property such as eyeglasses to a purchaser. In that case the Supreme Court said, "If it becomes necessary for a physician to furnish medicine or surgical dressings in effecting a cure, he certainly does not thereby come within the designation of those engaged in a calling which would result in the imposition of a retail tax. The same reasoning applies to dentists even though that calling requires the furnishing of certain inlays, fills, crowns or even false teeth, if necessary to a completion of the dental service." Accordingly the appellate court concluded that the plaintiff was not engaged in selling false teeth to the defendant but that his charges were for his skill and knowledge for his personal work in the examination and making of the dentures in question. The instruction treating him as a seller of tangible personal property was therefor improperly given.

Because of errors in instruction and in the admission of evidence, the judgment in favor of the defendant was reversed. *Gunter v. Cascio, 81 N.E. (2d) 766 (Ill., 1948).*

Council on Medical Education and Hospitals

NEW HOSPITALS REGISTERED

The following hospitals were registered by the Council on Medical Education and Hospitals of the American Medical Association at its meeting in St. Louis Nov. 29, 1948:

Gunnison Community Hospital, Gunnison, Colo.
Escambia General Hospital, Pensacola, Fla.
Meriwether Hospital, Plant City, Fla.
Wall Hospital, Blakely, Ga.
Matthews Hospital, Dallas, Ga.
State Sanatorium, Hillcrest Division, Topeka, Kansas
Veterans Admin. Hospital, Fort Thomas, Ky.
Mount Mary Hospital, Hazard, Ky.
Ritchie Hospital, Cascade, Md.
Santa Maria Hospital, Cambridge, Mass.
Lynn Hospital, Detroit
Michigan Memorial Hospital, Detroit
Community Hospital, Corinth, Miss.
Memorial Hospital, Harrisonville, Mo.
Student Health Center, Lincoln, Neb.
Salvation Army Home and Hospital, Buffalo
Graylyn, Bowman Gray School of Medicine, Winston-Salem, N. C.
Cochrane Hospital, Dayton, Ohio
Cowart-Sisler Clinic-Hospital, Bristow, Okla.
Franklin Clinic Hospital, Elizabethton, Tenn.
East Tennessee Baptist Hospital, Knoxville, Tenn.
Cleveland Hospital, Cleveland, Texas
St. Elizabeth's Hospital, Houston, Texas
Hardy-Hancock Hospital, Jasper, Texas
Seale Clinic and Hospital, Jasper, Texas
Bayview General Hospital, Palacios, Texas
Odom Dryden Clinic Hospital, Memphis, Texas
Green Hospital and Clinic, Muleshoe, Texas
Shamrock General Hospital, Shamrock, Texas
McConnell Hospital and Clinic, Sulphur Springs, Texas
Tahoka Clinic and Hospital, Tahoka, Texas
Circle Terrace Hospital, Alexandria, Va.
Lake Chelan Community Hospital, Chelan, Wash.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I & II.* Various Centers, Feb., June and Sept. 1949. *Part II.* April 1949. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2, Pa.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC.: *Written.* July 15. Various locations. Final date for filing application is April 15. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Avenue, New York 27.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various Centers, Feb. 10. *Oral.* New York City, April 1-4. Sec., Dr. George M. Lewis, 66 East 66th Street, New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* San Francisco, Feb. 8-10, 1949. New York City, March 23-25, Philadelphia, June 1-3. *Written.* Oct. 17, 1949. Final date for filing application is May 1. Asst. Sec.-Treas., Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, June 1949. Final date for filing application is Jan. 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC.: *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Jan. 14. *Oral.* San Francisco, March 21-24; New York, June 11-15; St. Louis, Oct. 15-19; Boston, Dec. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPEDIC SURGERY: *Part I.* Various Centers, April and May. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: Boston, April. Final date for filing application is March 1. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

AMERICAN BOARD OF PEDIATRICS: *Oral.* St. Louis, Feb. 18-20. Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE: Atlantic City, June 4-5. Final date for filing application is March 15. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: *Oral.* May. Final date for filing application is Feb. 15. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, March 1949. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ALASKA: * Juneau, March 1. Sec.-Treas., Dr. W. M. Whitehead, Box 140, Juneau.

ARKANSAS: * Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 2-3. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CONNECTICUT: * Hartford, March 8-9. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

DELAWARE: *Examination.* Dover, Jan. 11-13. *Endorsement.* Jan. 20. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

GEORGIA: *Examination.* June, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam, % F.P.O. San Francisco, Calif.

HAWAII: *Examination.* Honolulu, Jan. 10-13. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu 53.

IDAHO: Boise, Jan. 10-12. Dir., Bureau of Occupational Licenses, Miss Estella S. Mulliner, State House, Boise.

ILLINOIS: Chicago, Jan. 11-13. Superintendent of Registration, Mr. Fred W. Ruegg, State House, Springfield.

INDIANA: *Examination.* Indianapolis, June. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

MAINE: Portland, March 8-9. Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

MASSACHUSETTS: *Examination.* Boston, March 8-11. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

MINNESOTA: * Minneapolis, Jan. 18-20. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Building, St. Paul.

MISSOURI: Kansas City, Jan. 24-26. Sec., Mr. John A. Hailey, State Capitol Bldg., Box 4, Jefferson City.

MONTANA: Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena.

NEBRASKA: * *Examination.* Omaha, June. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

NEVADA: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

NEW HAMPSHIRE: Concord, March 10. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

NEW MEXICO: Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

NEW YORK: *Examination.* Various Centers, Feb. 1-4. Sec., Dr. J. L. Lochner, Jr., 23 S. Pearl St., Education Bldg., Albany.

NORTH CAROLINA: *Endorsement.* Raleigh, Jan. 17. Sec., Dr. Ivan M. Procter, 226 Hillsboro St., Raleigh.

OHIO: *Endorsement.* Columbus, Jan. 25 and April 5. *Written.* Columbus, June. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

PENNSYLVANIA: *Examination.* Philadelphia, Jan. 1949. Act. Sec., Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: *Examination.* Santurce, March 1. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

SOUTH DAKOTA: * Pierre, Jan. 18-19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

TEXAS: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

UTAH: *Examination.* Salt Lake City, July. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VERMONT: *Examination.* Burlington, Feb. 3-5. Sec., Dr. F. J. Lawliss, Richford.

WASHINGTON: * Seattle, Jan. 17-19. Sec., Dept of Licenses, Miss Virginia Wotherspoon, Olympia.

WISCONSIN: * Madison, Jan. 11-13, 1949. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls, Wis.

WYOMING: *Examination.* Cheyenne, Feb. 7. Sec., Dr. Franklin D. Yoder, Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Juneau, Feb. 21-26. Sec.-Treas., Dr. C. Earl Albrecht, Box 1931, Juneau.

COLORADO: *Examination.* Denver, Mar. 2-3. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: New Haven, Feb. 12. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

DISTRICT OF COLUMBIA: *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., East, Washington.

FLORIDA: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

IOWA: *Examination.* Des Moines, Jan. 11. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Ann Arbor & Detroit, Jan. 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

MINNESOTA: *Examination.* April, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

OKLAHOMA: Spring of 1949. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

RHODE ISLAND: *Examination.* Providence, Feb. 9. Chief, Mr. Thomas B. Casey, 366 State Office Building, Providence.

SOUTH DAKOTA: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St,. Yankton.

WASHINGTON: Seattle, Jan. 12-13. Sec., Dept. of Licenses, Miss Virginia Wotherspoon, Olympia.

WISCONSIN: Madison, April 2.. Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American J. Digestive Diseases, Fort Wayne, Ind.

15:253-288 (Aug.) 1948

Critique on Vagotomy, Part I. Historical and Experimental. J. A. Schilling, Alexandra Feldmahn and W. J. M. Scott.—p. 253.
Dynamics of Muscle Tonus and Its Relationship to Circulatory Failure: Part III, "New Approach to Treatment of Hypertension and Circulatory Failure by Use of Iron Salt of Adenylic Nucleotide." S. L. Ruskin.—p. 261.
Effect of Tripelennamine Hydrochloride (Pyribenzamine) on Gastric Acidity of Patients with Peptic Ulcer. S. A. Hartman and D. M. Moore.—p. 271.
Vitamins and Hormones in Nutrition: IV. Gastro-Intestinal Disease and Reduced Dietary Intake. B. F. Sieve.—p. 275.

American Journal of Diseases of Children, Chicago

75:265-492 (March) 1948

Plasma Protein Studies on Normal Newborn and Premature Infants: I. Plasma Protein Values for Normal Full Term and Normal Premature Infants; II. Use of Concentrated Normal Human Serum Albumin in Treatment of Premature Infants. Lucy-Gale McMurray, J. H. Roe and L. K. Sweet.—p. 265.
Lengths of Femur and Tibia: Norms Derived from Orthoroentgenograms of Children from Five Years of Age Until Epiphysial Closure. Margaret Anderson and W. T. Green.—p. 279.
*Use of Continuous Caudal Analgesia for Control of Hypertension in Acute Nephritis. J. G. Hughes, G. S. Lovejoy, H. D. Lynn and R. A. Hingson.—p. 291.
Semi-Self-Demand Feeding Schedule for Prematurely Born Infants. K. Glaser.—p. 309.
*Congenital Diabetes Insipidus Resistant to Treatment with Pitressin. J. Dancis, J. R. Birmingham and S. H. Leslie.—p. 316.
Individual Differences in Physical Changes Associated with Adolescence in Girls. E. L. Reynolds and Janet V. Wines.—p. 329.
*Salmonella Meningitis: Report of 3 Cases and Review of 144 Cases from Literature. L. L. Henderson. p.—351.
*Systemic Aleukemic Reticuloendotheliosis (Letterer-Siwe Disease). C. Varga, M. N. Richter and A. G. DeSanctis.—p. 376.
Evaluation of Certain Preparations for Care of Skin of Newborn Infants. M. A. Perlstein.—p. 385.

Caudal Analgesia for Hypertension in Acute Nephritis.—Hughes and his associates observed 2 children with acute nephritis associated with extreme hypertension and cardiac failure who failed to respond satisfactorily to administration of magnesium sulfate and other measures. Since continuous caudal analgesia had been used successfully in the reduction of extreme hypertension of obstetric patients with eclampsia, they decided to employ this method in the 2 children. Caudal analgesia was used in the treatment of 2 additional patients with acute nephritis, 1 of whom was an adult. The 3 children were in coma. Two of them had generalized convulsions and 2 uremia. The uremic children had rapidly progressive anemia. Of the 4 patients, 2 had anuria and 1 almost complete anuria. The first child responded with prompt reduction of hypertension, almost immediate recovery from coma, reestablishment of cardiac compensation and a subsequent uneventful recovery. The second child had almost complete anuria, uremia, rapidly progressive anemia, extreme hypertension, cardiac failure and generalized convulsions. She responded to continuous caudal analgesia with a prompt reduction of hypertension, but the effect could be maintained for only an hour. She died. The third patient, a diabetic adult with acute nephritis, had total anuria, moderate uremia and moderate hypertension. The hypertension was repeatedly reduced with caudal analgesia, but the procedure seemed to bear no influence on subsequent diuresis, which may have been increased by other types of treatment given. The fourth patient, a child, had total anuria, uremia, rapidly progressive anemia, hypertension, cardiac failure and generalized convulsions. Moderate diuresis followed immediately the institution of continuous caudal analgesia, and the blood pressure was repeatedly reduced. However, the patient died. The mechanisms with which continuous caudal analgesia effects reduction in hypertension are believed to be increased blood flow to the lower extremities, probable dilation of the splanchnic bed and increased blood flow to the kidneys, possibly with resultant diminished production of renin. The use of continuous caudal analgesia may prove valuable for patients with severe acute nephritis who, in spite of the use of magnesium sulfate and other measures, continue to have extreme hypertension, cardiac failure or hypertensive encephalopathy. Hypertension in 2 additional cases of acute nephritis with severe cardiac failure has responded to continuous caudal analgesia.

Congenital Diabetes Insipidus Resistant to "Pitressin."—Dancis and his collaborators report the case of an infant in whom the presenting problem of recurrent bouts of unexplained fever was demonstrated to be secondary to dehydration resulting from extreme polyuria. It was believed that the polyuria was not due to deficiency in neurohypophysial activity, because (1) the polyuria did not respond to the administration of "pitressin" and (2) an antidiuretic substance presumably derived from the pituitary was present in the patient's urine in large amounts. The excessive diuresis in this patient may be due to a congenital anomaly of renal function resulting in a kidney unable to respond to normal hormonal control.

Salmonella Meningitis.—The recent occurrence in Gorgas Hospital of the Panama Canal Zone of meningitis due to Salmonella in 2 infants, 1 of whom recovered, prompted Henderson to review the hospital's clinical and laboratory records back to 1925. The search revealed a third case. The reviews of the literature revealed a total of 144 cases, the first report having appeared in 1907. The author's extensive bibliography contains 81 references. He believes the disease to be septicemia, with locus minoris resistentiae an important factor. Certain few types of Salmonella account for the majority of the cases. A combination of factors peculiar to newborn infants operates to make them especially susceptible to the infection. The clinical features for that group include an epidemic tendency, diarrhea and a rapidly fatal course, in contrast to sporadicity, common absence of diarrhea and better prognosis in older infants. In both groups the course is febrile, with leukocytosis. The spinal fluid shows an increase in cells, with an early predominance of neutrophils. The organism may often be seen on direct smear and is identified from cultural and serologic characteristics. At necropsy purulent meningitis is observed. The disease is favorably influenced by systematic treatment with sulfonamide compounds, sulfadiazine probably being the drug of choice. Of 19 patients treated in this manner, 10 recovered, while only 8 of 128 patients who did not receive a sulfonamide drug recovered. Penicillin is ineffective. The usefulness of streptomycin remains to be investigated. Blood transfusion appears to be a valuable aid. Prognosis also depends on the age of the patient and the type of organism causing the infection. Only 1 of 49 patients less than 1 month old recovered, whereas 17 of 80 children in the older age group lived. Patients with infections due to Salmonella paratyphi A, S. paratyphi B and Salmonella panama accounted for the majority of those who recovered, while 45 persons with infections due to Salmonella enteritidis and its varieties all died.

Systemic Aleukemic Reticuloendotheliosis (Letterer-Siwe Disease).—Varga and his associates say that although Letterer described a special type of reticuloendotheliosis in a young child almost twenty-five years ago, few cases have been reported since. The authors present the histories and necropsy reports of 3 young children with systemic aleukemic nonlipid reticuloendotheliosis recently studied by them. Two of the children exhibited cutaneous manifestations not unlike infected eczema. Emphasis is placed on the presence of these cutaneous lesions. Cutaneous lesions apparently are an essential part of the disease. Most reports identify them as petechial or purpuric, but the authors say that lesions similar to those described in their cases have also been mentioned in the literature. Infections, especially purulent otitis media, are mentioned in many cases. The following signs are listed as characteristic of

Letterer-Siwe disease: severe splenomegaly with moderate enlargement of the liver, a hemorrhagic tendency, with petechiae of purpura; a generalized glandular enlargement, localized tumors of bone (rarefactions), secondary anemia, fever and generalized hyperplasia of the reticuloendothelial system. The condition known as Letterer-Siwe disease may be less infrequent than supposed in the past. The authors believe that the clinical similarity to commoner diseases, such as infantile eczema, and its pathologic similarity to many other granulomatous diseases may have confused the diagnosis in the past. Antibiotic drugs failed in the reported cases and irradiation was not tried.

American Journal of Ophthalmology, Cincinnati

31:915-1052 (Aug.) 1948

Clinical Course of Glaucoma: Review of 474 Cases from Private Practice. A. Posner and A. Schlossman.—p. 915.
Some Problems in Calibration of Tonometers. J. S. Friedenwald.—p. 935.
Beta Irradiation as Possible Therapeutic Agent in Glaucoma: Experimental Study with Report of Clinical Case. G. M. Haik, L. A. Breffeilh and Aeleta Barber.—p. 945.
Flare-up of Trachomatous Pannus Due to Ariboflavinosis. J. Landau and H. J. Stern.—p. 952.
Mikulicz's Disease and Syndrome. P. Heath.—p. 955.
Operative Failures for Chronic Simple Glaucoma: Histologic Study. B. F. Payne.—p. 965.
Technic for Muscle Resection Without Use of Prince Forceps. E. Yasuna. —p. 972.
Modification of Elliot's Operation and Its Application to High Trephination: Preliminary Report. W. Arkin.—p. 975.
Note on Methodological Evaluation of Selected Visual Tests. J. Brozek, E. Simonson and J. C. Franklin.—p. 979.
Some Experiments with Green Spectacles Prescribed to Glaucomatous Patients. R. B. Zaretskaya.—p. 985.
Rubeosis Iridis Diabetica. J. V. Lisman.—p. 989.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

60:153-292 (Aug.) 1948

Technics for Application of Betatron to Medical Therapy. G. D. Adams, G. M. Almy, S. M. Dancoff and others.—p. 153.
Some Depth Dose Studies of Roentgen Rays for Energy Levels from 20 to 100 Million Electron Volts. E. E. Charlton and H. E. Breed. —p. 158.
New Photographic Material for Gamma-Ray Dosimetry. H. O. Whipple, C. S. Hornberger, J. G. Hoffman and J. F. Nolan.—p. 175.
Considerations in Treatment of Hemangioma in Infants and Young Children. E. P. Pendergrass, J. C. Katterjohn and J. B. Butchart. —p. 182.
*Colloidal Lead Orthophosphate Associated with Deep Roentgen Therapy in Bone Metastases from Cancer of Breast. L. Reynolds, T. Leucutia, J. C. Cook and K. E. Corrigan.—p. 193.
Simultaneous Disappearance of Treated and Untreated Tumors After Irradiation. A. J. Delario.—p. 207.
Diagnosis of Suprasellar Tumors by Pneumoencephalography. N. S. Schlezinger and J. G. Teplick.—p. 213.
Retrocardiac Bronchiectasis. R. G. Bloch, L. F. Sandock and E. B. Mitchell.—p. 219.
Clinical and Pathologic Observations in Study of Degenerative Arthritis of Hip Joint. T. Horwitz.—p. 225.
Hypertrophic Osteoarthropathy. H. L. Temple and G. Jaspin.—p. 232.
Sclerosis of Bones in Gaucher's Disease. F. Windholz and S. E. Foster. —p. 246.
Case of Long Standing Sickle Cell Anemia with Marked Bone Changes. Inga F. Weil and H. H. Lerner.—p. 251.
Diverticulosis of Gallbladder: Case Report. A. J. Ackerman.—p. 256.

Lead Orthophosphate and Roentgen Rays in Bone Metastases.—A review of the literature convinced Reynolds and his co-workers that colloidal lead orthophosphate, introduced by Ullmann and Bischoff, is considerably more stable and less toxic than the electric suspension of metallic lead used by Bell for the treatment of cancer. Diffraction studies performed in rabbits at Harper Hospital confirmed the affinity of the lead for the osseous system, the largest deposition occurring along the epiphysial lines. The intravenous injection of colloidal lead orthophosphate in conjunction with roentgen therapy leads to a threefold effect in the malignant neoplastic invasion of the osseous system: (1) The lead has a certain toxic action in itself; (2) there is a direct destructive effect of the roentgen ray, and (3) the heavy lead atoms deposited within the tumor area emit, under the influence of the roentgen irradiation, ionizing secondary electrons which also act on the carcinoma cells. The method has been used during the past twenty years in a series of 355 cases of bone metastases chiefly from carcinoma of the breast. In 95 per cent of the cases the immediate palliative effect was remarkable. The average survival amounted to three years. In 4 per cent the survival was more than five years. More recently attempts were made to use radioactive lead orthophosphate to add internal irradiation, if possible, to the enumerated threefold effect. In a series of preliminary experiments tracer studies were carried out in rabbits and some patients by injecting a specially prepared colloidal solution of the lead orthophosphate in which the phosphorus was "tagged." The results substantiated the findings arrived at by chemical and roentgen diffraction analysis. Investigations with "tagged" lead are necessary before worthwhile therapeutic efforts can be undertaken.

Archives of Internal Medicine, Chicago

81:249-430 (March) 1948

Spontaneous Myohemoglobinuria in Man: Description of Case with Recurrent Attacks. F. L. Kreutzer, L. Strait and W. J. Kerr —p. 249.
Neurocirculatory Asthenia, Anxiety Neurosis or Effort Syndrome. M. E. Cohen, P. D. White and R. E. Johnson.—p. 260.
Effect of Lanatoside C on Circulation of Patients with Congestive Failure: Study Using Catheterization of Right Side of Heart. E. A. Stead Jr., J. V. Warren and E. S. Brannon.—p. 282.
Place of Intermittent Venous Hyperemia in Treatment of Obliterative Vascular Disease. M. H. Evoy and G. de Takats.—p. 292.
*Pancreatic Calcification: Study of Clinical and Roentgenologic Data on 39 Cases. E. E. Gambill and D. G. Pugh.—p. 301.
Insulin Allergy: Treatment with Histamine Antagonists. S. P. Klein. —p. 316.
Heterophile Antibody Titer in Diseases Other Than Infectious Mononucleosis. Loraine E. Schultz.—p. 328.
*Mixed Infection in Subacute Bacterial Endocarditis: Report of 2 Cases. M. G. Olinger.—p. 334.
Primary Systemic Amyloidosis Simulating Constrictive Pericarditis: with Steatorrhea and Hyperesthesia. J. W. Findley Jr. and W. Adams. —p. 342.
*Studies on Hypertension: VII. Mechanism of Fall in Arterial Pressure Produced by High Spinal Anesthesia in Patients with Essential Hypertension. R. Gregory and W. C. Levin.—p. 352.
Exophthalmos and Thiouracil Therapy. W. H. Beierwaltes.—p. 364.
Lobar Adenocarcinoma of Lung Simulating Pneumonia: Report of 2 Cases. Gertrude Silverman and A. Angrist.—p. 369.

Pancreatic Calcification.—The objectives of the analysis presented by Gambill and Pugh were (1) to study the symptoms and the roentgenologic features in cases of pancreatic calcification and (2) to learn whether there is any correlation between the extent of calcification in the pancreas and the incidence of clinical manifestations, with particular reference to the manifestations of other complications of pancreatic disease such as diabetes mellitus and steatorrhea. There were 39 cases in which, in the opinion of one of the authors, the criteria for the roentgenologic diagnosis of pancreatic calcification were fulfilled. They found that calcareous deposits in the pancreas were usually but not always associated with relapsing pancreatitis. Commonly the symptoms were those of pancreatitis, although in approximately two fifths of the cases there was either no history of pancreatitis or a doubtful one. Among cases in which a definite history of pancreatitis was obtained, calcification became evident in a fifth in one year after the onset of pain, but in another fifth calcification was not discovered until after eleven to twenty-two years. Associated complications in the order of frequency of occurrence were diabetes, steatorrhea, gastrointestinal hemorrhage, morphinism, pancreatic pseudocyst, pancreatic abscess and peripheral neuritis. There was a high degree of positive correlation between the extent of pancreatic calcification and the incidence of two other complications associated with pancreatic calcification, diabetes and steatorrhea. Diabetes and steatorrhea occurred only in cases of calcification in which there was a definite diagnosis of pancreatitis.

Mixed Infection in Subacute Endocarditis.—Olinger reports 2 cases of subacute bacterial endocarditis with mixed infection which responded favorably to antibiotic therapy. In the first case Corynebacterium pseudodiphthericum (hoffmannii) and Streptococcus viridans were present, the former having higher resistance to penicillin than the latter. When Corynebacterium was recognized as one of the infecting agents, penicillin was given in adequate dosage. In the second case Str. viridans and Hemophilus parainfluenzae were present. The simultaneous use of two antibiotics, penicillin and streptomycin, was necessary. This represents the third reported case of subacute bacterial endocarditis due to a gram-negative bacillus which was successfully treated with streptomycin. It is sug-

gested that mixed infection in subacute bacterial endocarditis may be more frequent than is reported. Adequate selection of suitable antibiotics may require identification of all the organisms involved in a given infection.

Reduction in Arterial Hypertension by High Spinal Anesthesia.—This is the seventh of a series of reports on the effect of spinal anesthesia on hypertension. It is the first of several devised to elucidate the mechanism of the fall of arterial pressure produced by spinal anesthesia. Simultaneous arterial and venous pressures were determined in 5 normotensive subjects. Twelve separate studies were made in 10 patients with a clinical diagnosis of essential hypertension. Control observations were made, and similar determinations were then made with high spinal anesthesia induced by 150 mg. of procaine hydrochloride. Observations were continued during recovery stages. In the majority of the patients with essential hypertension, the arterial pressure fell before the venous pressure fell. In 1 case, the venous pressure fell without any significant decrease in arterial pressure. In only 2 cases, the venous pressure dropped first, and in these 2 cases the arterial pressures fell to their lowest levels before the venous pressures fell to their lowest levels. In these 2 cases, the arterial pressures were rising while the venous pressures continued to fall. There is no constant time correlation between the falls of arterial and venous pressures during high spinal anesthesia in patients with hypertensive disease. It is extremely unlikely that decreased venous return and diminished cardiac output are the causes of the fall in arterial pressure caused by high spinal anesthesia in either normotensive or hypertensive subjects. The failure of these data to support the idea that decreased cardiac output is the cause of falls in arterial pressure gives additional support to the likelihood that these falls in arterial pressure are caused by interruption of vasomotor function.

Indiana State Medical Assn. Journal, Indianapolis

41:781-884 (Aug.) 1948

Recent Advances in Pharmacology and Therapeutics. R. A. Solomon and others.—p. 799.
Colic in Infancy. R. Miller.—p. 806.
Mesenteric Adenitis of Distal Ileum and Appendicitis. O. W. Sicks.—p. 807.
General Treatment in More Severe Type of Burns. A. V. Cole.—p. 812.
Management and Treatment of Goiter. G. Link.—p. 814.

41:885-992 (Sept.) 1948

Treatment of Hemangioma. J. C. Katterjohn.—p. 903.
Treatment of Infantile Paralysis During Acute Stage. P. Lewin.—p. 908.
Anesthesia for Chest Surgery. M. B. Flanigan and H. T. Moore.—p. 911.
Surgical Conditions of Gall Bladder. M. B. Catlett.—p. 913.
*Tonsillectomy—Pro and Con. E. T. Gaddy.—p. 914.
Toxicology of Heavy Metals. L. T. Fairhall.—p. 917.

Tonsillectomy—Pro and Con.—Gaddy believes that tonsillectomy and adenoidectomy are indicated in children in whom hypertrophy causes obstruction with labored breathing. Tonsillectomy, after one or more attacks of peritonsillar abscess or quinsy, will prevent recurrences. Tonsillitis followed by systemic infections, such as acute rheumatic fever, endocarditis or nephritis, should be treated by tonsillectomy as soon as the acute attack of the complicating infection subsides. Routine removal of tonsils and adenoids in children is to be condemned because of subjecting the child to the risks of surgical treatment without benefit of improved health. In many cases, when normal tonsils and adenoids have been removed, the child's general condition becomes worse. This occurs because the common cold that is acquired in childhood, instead of becoming an ordinary infection of the upper respiratory tract, results in acute bronchitis, or bronchopneumonia or lobar pneumonia. This is due to the absence, or break in the protective ring, of lymphoid tissue in the pharynx and throat. The immediate postoperative complications are bleeding, pneumonia, acute otitis media, suppurative cervical adenitis, atelectasis, tetany, erysipelas and lung abscess. The author presents a photograph which illustrates the method which he has used for the past seven years for the prevention of postoperative complications after tonsillectomy. He uses postural drainage so that blood and saliva are not aspirated, and postoperative pneumonia and lung abscess are thus prevented. The relation of poliomyelitis and tonsillectomy during the months of July to October, inclusive, shows that the possibility of concurrence is minimal, but when it does occur it is generally of the serious bulbar type. The Board of Preventive Medicine advises physicians not to perform tonsillectomies when poliomyelitis epidemics occur during these months.

Iowa State Medical Society Journal, Des Moines

38:357-398 (Aug.) 1948

Anatomy and Physiology of Lesser Circulation as Basis for Understanding of Its Clinical Diseases. W. W. Wasson.—p. 357.
Diagnosis and Surgical Treatment of Patent Ductus Arteriosus. W. J. Potts.—p. 361.
Application of Oximetry and Cardiac Catheterization to Diagnosis of Congenital Heart Disease. H. B. Burchell.—p. 364.
Digitalis. H. J. Smith.—p. 368.
Diuretics in Cardiac Failure. J. E. McFarland.—p. 371.

Journal of Bacteriology, Baltimore

56:143-258 (Aug.) 1948. **Partial Index**

Nonspecific Antistreptolysin Reactions and Serum (or Pleural-Exudate) Cholesterol. T. Packalén.—p. 143.
Method for Investigating Large Microbial Populations for Antibiotic Activity. A. Kelner.—p. 157.
Nutritional Requirements of Treponemata: I. Arginine, Acetic Acid, Sulfur-Containing Compounds, and Serum Albumin as Essential Growth-Promoting Factors for Reiter Treponeme. H. Eagle and H. G. Steinman.—p. 163.
Quantitative Analysis of Resistance of Mycobacteria to Streptomycin. D. Yegian and R. J. Vanderlinde.—p. 177.
Endotoxin of Pasteurella Pseudotuberculosis. A. S. Lazarus and M. M. Nozawa.—p. 187.
Partial Purification of Staphylocoagulase and Effect of Certain Presumptive Inhibitors on Its Plasma-Coagulating Action. B. S. Walker, M. A. Derow and N. K. Schaffer.—p. 191.
Effects of Lysolecithin on Growth of Lacto-Bacillus Casei in Relation to Biotin, Pantothenic Acid, and Fat-Soluble Materials with Biotin Activity. W. Trager.—p. 195.
Serial Passage of Mixtures of Different Strains of Influenza Virus in Embryonated Eggs and in Mice. J. Y. Sugg and T. P. Magill.—p. 201.
Observations on Bacteria Sensitive to, Resistant to, and Dependent on Streptomycin. T. F. Paine Jr., and M. Finland.—p. 207.
Unidentified Nutrients in Tetanus Toxin Production. J. H. Mueller and Pauline A. Miller.—p. 219.
Effect of "Tween 80," Bovine Albumin, Glycerol, and Glucose on Growth of Mycobacterium Tuberculosis Var. Hominis (H37Rv). T. H. Sattler and G. P. Youmans.—p. 235.

Journal of Experimental Medicine, New York

88:149-266 (Aug.) 1948

Effect of Nucleic Acids and of Carbohydrates on Formation of Streptolysin. A. W. Bernheimer and M. Rodbart.—p. 149.
Esterases of Testis and Other Tissues. C. Huggins and S. H. Moulton.—p. 169.
Occurrence of Nucleases in Culture Filtrates of Group A Hemolytic Streptococci. M. McCarty.—p. 181.
Means of Increasing Tuberculostatic Effect of Known Chemotherapeutic Agents. B. Eiseman.—p. 189.
Immunochemistry of Toxins and Toxoids: VI. Crystallization and Characterization of Tetanal Toxin. L. Pillemer, R. G. Wittler, J. E. Burrell and D. B. Grossberg.—p. 205.
*Isolation of Mumps Virus from Human Beings with Induced Apparent or Inapparent Infections. G. Henle, W. Henle, K. K. Wendell and P. Rosenberg.—p. 223.
Studies on Newcastle Disease Virus. F. B. Bang.—p. 233.

Isolation of Mumps Virus.—The Henles and their associates were concerned with the isolation of mumps virus from the saliva of human beings at various stages of infection. It was considered difficult to approach these problems under epidemic conditions, since frequently the time and intensity of exposure would not be accurately known, whereas the study of persons experimentally exposed to mumps virus offered the advantage of controlling both these factors. Exposure of 15 children to mumps virus of fifth amniotic passage in chick embryos led to involvement of the salivary glands in 6, orchitis in the absence of other manifestations of mumps in 1 and no signs of illness in 8. Attempts to isolate virus from the saliva of these persons gave the following results: 1. All patients with involvement of the salivary glands excreted virus beginning on the eleventh to fifteenth day after exposure, two to six days prior to onset of clinical signs of disease and extending up to the fourth day of illness. 2. The patient with primary orchitis without any recognized involvement of the salivary glands excreted virus for two days, beginning on the fifteenth day after exposure and ten days prior to his illness. 3. Six of

the 8 children classified as having inapparent infections because of their serologic response in the absence of clinical signs of illness began to excrete virus on the fifteenth to sixteenth day after exposure for one to nine or more days. The epidemiologic significance of these data is discussed.

Journal of Lab. and Clinical Medicine, St. Louis

33:919-1058 (Aug.) 1948

Antihyaluronidase Antagonistic to Pneumococcus Hyalronidase in Serum of Normal Human Beings and Patients with Pneumococcic Pneumonia: Rise of Titer in Bacteremic Pneumococcic Pneumonia. R. T. Thompson.—p. 919.
Role of High Blood Penicillin Levels Achieved with Caronamide in Penetrating the Blood-Brain Barrier. H. D. Janowitz, S. S. Schneierson, Marcy L. Sussman and F. H. King.—p. 933.
Effect of Sodium Salicylate on Serum Disease in Rabbits. Katharine Smull, R. W. Wissler and J. M. Watson.—p. 936.
Alterations of Radial or Brachial Intra-Arterial Blood Pressure and of Electrocardiogram Induced by Tilting. R. S. Green, A. Iglauer and J. McGuire.—p. 951.
Dicumarol in Experimental Myocardial Infarction. G. V. LeRoy and L. A. Nalefski.—p. 961.
Effects of Dicumarol on Electrocardiogram. S. S. Balkin and A. Gootnick.—p. 972.
Life Span of Sickle Cell and Pathogenesis of Sickle Cell Anemia. K. Singer, S. Robin, J. C. King and R. N. Jefferson.—p. 975.
*Intragroup Incompatibility with Respect to Hr Blood Factors as a Cause of Minor Hemolytic Transfusion Reactions. A. A. Wiener.—p. 985.
Infectious Hepatitis Inadvertently Transmitted with Therapeutic Malaria. M. H. Smith and J. W. Hall.—p. 998.
*Studies in Hodgkin's Syndrome: VII. Nitrogen Mustard Therapy. R. P. Zanes, C. A. Doan and H. A. Hoster.—p. 1002.
Effect of Liver Extract and Vitamin B_{12} on Mucous Membrane Lesions of Macrocytic Anemia. R. E. Stone and T. D. Spies.—p. 1019.
Effect of 2,3-Dithiopropanol (BAL) on Gold Toxicity in Rats. C. S. Gillmor and R. H. Freyberg.—p. 1024.
*Effect of Feeding Propylthiouracil and Cholesterol on Blood Cholesterol and Arterial Intima in Rat. L. Horlick and L. Havel.—p. 1029.

Hr Blood Factors as Cause of Transfusion Reaction.—According to Wiener, Rh-positive persons can be isosensitized because of the exjstence of more than one variety of Rh factor and the so-called Hr factors. Luckily, these other blood factors are far less antigenic than the original rhesus factor (Rh_0) so that such cases are rather rare. When isosensitization does occur it hardly ever reaches the degree characteristic of Rh_0 or A-B sensitization, so that the antibodies usually are not demonstrable in the sensitized person's serum and the reactions following transfusions of incompatible blood are mild and simulate pyrogenic reactions. These minor hemolytic reactions occurring in Rh-positive recipients are the subject of the present paper. The cases forming the basis of this study were derived principally from the Blood Transfusion Division of the Jewish Hospital of Brooklyn. The author lists 32 cases of post-transfusion febrile reactions. In cases 1 to 22 there was some clinical evidence of post-transfusion hemolysis, while in cases 23 to 32 there was no evidence of hemolysis. While the distribution of the Rh-Hr among the control cases (cases 23 to 32) did not seem unusual, the distribution among the patients who had hemolytic reaction deviated strikingly. One cannot avoid being impressed by the large proportion of Hr-negative patients in the series—14 Rh_1Rh_1 and 3 Rh_2Rh_2 out of 22 cases. These results suggest that sensitization to the Hr factors, hr′ and hr″, must have played a role in many of the reactions. Hr antibodies were clearly demonstrable in the serums of only 3 (2 anti-hr′ and 1 anti-hr″) of the 17 presumably sensitized patients. This indicates that Hr sensitization, when it occurs at all, is usually mild. That such reactions may occasionally endanger the life of the patient is demonstrated by the fact that 1 of the 3 patients with demonstrable antibodies died. While routine pretransfusion Hr typing is still not practicable, one should at least investigate every febrile reaction for evidence of hemolysis. If hemolysis has occurred even though the patient is Rh positive, Hr tests should be done, and if the patient is found to be Hr negative, only Hr-negative blood of a compatible blood group should be used for future transfusions. If Rh-negative patients have reactions despite transfusions of type Rh blood, one should search for other sensitizations, particularly against the M factor. Eventually blood transfusion practice should include precautions to avoid sensitization against the Hr factors as well as the Rh factors, particularly in the case of women, in order to avoid the birth of babies with erythroblastosis caused by Hr sensitization.

Nitrogen Mustard in Hodgkin's Syndrome.—Zanes and his associates report on 31 patients with Hodgkin's disease who were treated with a total of 44 courses of methyl-bis (beta-chloroethyl) amine hydrochloride. Each patient was given 0.1 mg. of the nitrogen mustard per kilogram of body weight for five days with the exception of the 7 patients who were given a double dose on two consecutive days and a single dose on the third day. Each dose was dissolved in 10 cc. of isotonic sodium chloride solution and injected immediately via the tube through which isotonic sodium chloride solution was being administered intravenously to the patient. From 200 to 500 cc. of isotonic sodium chloride solution was infused during each injection of the nitrogen mustard. Beneficial results were observed in 20 patients receiving twenty-four courses. Indirectly, 3 other patients benefited through an apparent resensitization to roentgen rays. Improvement was characterized in most instances by immediate disappearance of fever, itching and pain. Brownish pigmentation of the skin was observed to decrease in several cases as did Hodgkin's skin lesions, splenomegaly, hepatomegaly and adenopathy. The toxic effects of the hydrogen mustard on hemopoietic and lymphoid tissues as reflected in peripheral blood and sternal marrow changes are described and discussed. These changes are contrasted with hematologic alterations observed during Hodgkin's disease. Nausea and vomiting was observed consistently after nitrogen mustard therapy. Unusual complications include ulceration and perforation of the mucosa of the gastrointestinal tract. Skin lesions macroscopically similar to those frequently seen in Hodgkin's disease appeared in an unusually large number of cases following nitrogen mustard therapy.

Effect of Feeding Propylthiouracil and Cholesterol on Arterial Intima.—According to Horlick and Havel previous work demonstrated that thyroidectomy renders animals more susceptible to the cholesterolemia and atherosclerosis which follow the feeding of cholesterol. Feeding desiccated thyroid or potassium iodide seems to protect the animals against the development of cholesterol-induced lesions and lowers the blood cholesterol levels. The authors were able to confirm the protective action of desiccated thyroid in another species, the chicken. They also observed the synergistic effect of cholesterol and thiouracil on raising the blood cholesterol levels of the chicken. With these considerations in mind, they decided to use the antithyroid drug thiouracil in the rat in an attempt to break down the resistance of this species to the induction of atherosclerosis by feeding of cholesterol. They found that propylthiouracil did not succeed in breaking down the rat's resistance to cholesterol-induced atherosclerosis. The resistance to atherosclerosis in this animal is probably dependent on other factors in addition to the thyroid gland and its secretions.

Journal of Nervous and Mental Disease, New York

108:91-180 (Aug.) 1948

Studies of Finger Capillaries in Schizophrenia and Manic-Depressive Psychoses. A. Hauptmann and A. Myerson.—p. 91.
Wernicke's Disease (Polioencephalitis Haemorrhagica Superior) and Vegetative Nervous System. L. Hess.—p. 109.
Neurosurgical Lesions Diagnosed as Multiple Sclerosis. S. Rosner.—p. 113.
*Methyl Hydantoin (Mesanfoin) in Treatment of Epilepsy. N. A. David, L. S. Durkin, M. L. Margason and W. A. Viele.—p. 118.
*Obesity Following Cerebral Injury. J. E. Pisetsky and B. Roswit.—p. 129.
Note on Some Basic Concepts of Psychotherapy. L. Bellak.—p. 137.
Clinical Studies of Psychoses in Navy: II. Prognosis. C. K. Aldrich and Mabel Coffin.—p. 142.
Compulsive Neurotic Criminalism with Hysterical Features Based on Sexual Psychopathy: Case Study. H. R. Lipton.—p. 149.

Methyl Hydantoin ("Mesantoin") in Epilepsy.—David and his co-workers tried the new anticonvulsant drug methyl hydantoin, called "mesantoin," for periods as long as eight months in the treatment of 20 patients with epilepsy. Eleven patients had grand mal seizures, 5 had petit mal epilepsy, 3 had both grand mal and petit mal attacks and one had jacksonian epilepsy. Administration of methyl hydantoin proved more effective in grand mal than previously used drugs in 7 of 11 patients. The number of petit mal attacks was decreased in each of the 16 patients suffering from this condition. Inconclu-

sive results were obtained in the 3 patients with both grand mal and petit mal because the period of observation was too brief. Dermatitis was caused by the drug in 3 patients; 1 patient complained of gastritis; another experienced an episode of toxic psychosis following administration of only four tablets, and 10 patients noted stimulatory effects. The authors believe that methyl hydantoin is an effective drug in the treatment of grand mal epilepsy and is especially useful in those cases in which phenobarbital causes undue mental depression or in which either phenobarbital or diphenylhydantoin sodium is ineffective. It appears somewhat more effective in the treatment of petit mal than diphenylhydantoin and should be given clinical trial in those cases of either grand mal or petit mal epilepsy in which other drugs are ineffective or not tolerated.

Obesity Following Cerebral Injury.—Pisetsky and Roswit present the case of a man, aged 51, who in a few months following a head injury gained 246 pounds (111.6 Kg.) in weight. The lesion was referred to the area of sella turcica. There was no evidence of any other metabolic disorder. The authors discuss the hypothalamic-pituitary system in relation to the possible role in the production of obesity.

New York State Journal of Medicine, New York

48:1759-1870 (Aug. 15) 1948

Some Newer Aspects of Protein Metabolism: I. Résumé of Experimental Data. D. Schwimmer and T. H. McGavack.—p. 1797.
Role and Control of Renal Dysfunction in Congestive Heart Failure. L. Leiter—p. 1803.
Fetal Defects Resulting from Illnesses of Pregnant Mother with Special Reference to Virus Diseases. M. H. Bass.—p. 1807.
*Significance of Cholesterol in Coronary Arteriosclerosis. A. Steiner. —p. 1814.
*False Serologic Tests for Syphilis in Infants of Treated Mothers. D. Moon-Adams.—p. 1819.
Use of Methylcellulose as Bulk Laxative. K. Schweig.—p. 1822.
Early Care of Hand Injuries: Some Common Difficulties. C. W. Cutler Jr.—p. 1824.
Physician and Venereal Disease Patient. L. E. Luehrs.—p. 1827.
Accident Prevention in Medical Practice. H. E. Kleinschmidt.—p. 1831.
Medical Treatment of Ménière's Syndrome. J. J. Rainey.—p. 1833.

Cholesterol in Coronary Arteriosclerosis.—Steiner demonstrated that arteriosclerotic lesions in young dogs similar in distribution and morphologic characteristics to human arteriosclerosis resulted from prolonged hypercholesterolemia. High serum cholesterol values were produced by the feeding of 10 Gm. of cholesterol daily to dogs whose thyroid function was modified by administration of thiouracil. Additional experiments showed that choline was effective in preventing arteriosclerosis in cholesterol-fed rabbits for a limited period, and in some instances caused a reabsorption of the previously induced arteriosclerotic lesions. Repeated consecutive determinations of serum cholesterol for periods up to two years in 15 patients with coronary arteriosclerosis, in 15 relatively normal persons, and single serum cholesterol determinations in 50 additional patients with coronary arteriosclerosis and in 50 normal persons of the same age group revealed that the serum cholesterol level of patients with overt coronary arteriosclerosis is significantly higher than the serum cholesterol level in normal persons in the same age groups. In addition, the serum cholesterol level of patients with coronary sclerosis fluctuates widely. An attempt to evaluate the significance of the cholesterol content of the diet in 14 patients with coronary arteriosclerosis has been made. It has been shown that within the limits of this study varying the cholesterol content of the diet fails to produce significant alterations of the serum cholesteral levels. Preliminary results indicate that large amounts of dietary cholesterol can be absorbed from the gastrointestinal tract without alteration of the serum cholesterol or clinical evidence of cholesterol deposition in the tissues. Further studies in cholesterol metabolism using tagged atoms are needed.

False Serologic Reactions for Syphilis.—Moon-Adams examined 470 infants of treated syphilitic mothers within the first three months of life for serologic, clinical and roentgenologic evidence of syphilis. False positive serologic reactions were observed in 69 of 146 infants (47.3 per cent) tested in the first month of life, in 16 of 232 infants (6.9 per cent) tested in the second month of life and in 1 of 87 infants (1.2 per cent) tested in the third month of life. False negative reactions were observed in 5 of the 470 infants (1.0 per cent of the total). In 1 of these syphilis was probably acquired. The duration of false positive serologic reactions varied from twenty-four days to fourteen weeks. Of the total 86 infants with false positive serologic reactions, 31 (36 per cent) had become negative in reaction in four weeks; 64 (74 per cent) in eight weeks; 80 (93 per cent) in twelve weeks, and 84 (97.7 per cent) in fourteen weeks. Correlation of the number of false positive serologic reactions with the time of mother's treatment shows a higher percentage in the infants of mothers treated in the last trimester of pregnancy. Compared with statistics based on mothers treated with arsenicals and bismuth compounds, a greater number of false positive serologic reactions can be expected in the infants of mothers treated with penicillin. In cases of mothers who have secondary syphilis during pregnancy and who receive treatment in the eighth month of pregnancy, it seems highly probable that the false positive reaction of the infants is not properly termed "false" but is evidence of a treated syphilitic infection contracted and cured in utero. In cases of mothers who were treated prior to pregnancy and received no treatment during pregnancy, it seems probable that a positive serologic reaction in the infant, which reverses to negative, represents a transfer of the reagin of the mother's blood. If these possibilities are accepted, the so-called false positive serologic reaction of the newborn infant has a dual cause.

Public Health Reports, Washington, D. C.

63:1027-1058 (Aug. 6) 1948

Tuberculosis Mortality in the United States, 1946. Evelyn H. Halpin. —p. 1029.
Arm Rest for Use in Microscopy. G. A. Spendlove, M. Cummings and R. Patnode.—p. 1046.

63:1059-1082 (Aug. 13) 1948

New Public Health Laws.—p. 1059.

63:1083-1110 (Aug. 20) 1948

Physical Impairments of Members of Low-Income Farm Families—11,490 Persons in 2,477 Rural Families Examined by Farm Security Administration, 1940: VII. Variation of Blood Pressure and Heart Disease with Age; and Correlation of Blood Pressure with Height and Weight. Mary Gover.—p. 1083.
Plague Infection Reported in United States in 1947: Human Case. —p. 1102.

63:1111-1146 (Aug. 27) 1948

The Pharmacist's Place in Cancer Control. R. F. Kaiser.—p. 1111.
*Cancer of Respiratory System in United States Chromate-Producing Industry. W. Machle and P. Gregorius.—p. 1114.
Half Century of State Cancer Legislation. A. V. Deibert.—p. 1128.

Cancer of Respiratory System in Chromate-Producing Industry.—Machle and Gregorius point out that in 1947 the management of one of the large producers of chromates in the United States became concerned with the incidence of lung cancer among their employees. An analysis of the mortality data of this company established the existence of high rates for lung cancer among the workers. A study was initiated by the health committee of the plants engaged in the extraction of chromates from ore. Of all deaths in the chromate industry 21.8 per cent were reported as being due to cancer of the respiratory system. This ratio is sixteen times the expected ratio of 1.3 per cent. The crude death rate for cancer of the lung was twenty-five times the normal. In five of the six plants investigated the death rate for lung cancer in the group 50 years of age and under ranged from twenty to seventy times that for a comparable industrial group. The mortality rates for lung cancer at ages over 50 years ranged from ten to forty times that for a comparable industrial group. There are no convincingly significant abnormalities in the rates for cancer in sites other than the lung. It appears that the problem in the chromate industry is limited to the cancers of the respiratory system. Sixty-six of the 193 deaths were due to cancer and 42 of these deaths were from cancers of the lung. One plant handling only bichromates, chromic acid and a tanning compound had 33 deaths, none of which was due to cancer of the respiratory system. This experience suggests that the monochromates may be the compounds responsible for cancer of the lung.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

32:449-516 (Aug.) 1948

*Intravitreous Streptomycin: Its Toxicity and Diffusion. P. A. Gardiner, I. C. Michaelson, R. J. W. Rees and J. M. Robson.—p. 449.
Analysis of Fibre-Size in Human Optic Nerve. L. W. Chacko.—p. 457.
Acute Retinopathy Without Hyperpiesis in Diabetic Pregnancy. R. D. Lawrence.—p. 461.
Crater-Like Holes in Optic Disk. E. Rosen.—p. 465.
Case of Grönblad-Strandberg Syndrome with Disciform Degeneration of Macule. G. Hibbert.—p. 478.
Myxo-Hemangioma Simplex of Conjunctiva Bulbi. A. Bakker.—p. 485.
Prognosis of Retrobulbar Neuritis. W. F. T. Tatlow.—p. 488.
*Treatment of Severe Infected Corneal Ulcers by Subconjunctival Injections of Penicillin, Twice Daily without Hospitalization, with Short Review of Other Methods. K. Rizk.—p. 497.
Operation for Persistent Pupillary Membrane: Notes on Case. Z. Báthori.—p. 505.

Intravitreous Streptomycin.—Gardiner and his associates say that previous studies have shown that streptomycin does not easily penetrate through the cornea. An attempt was made to investigate the concentrations of the drug attained in ocular fluids following its administration (1) into the vitreous and (2) subconjunctivally. An investigation of the action of streptomycin on the eye tissues following its intravitreous administration was also undertaken. Two samples of streptomycin were used. The pure sample was used for the intravitreous toxicity tests; it was streptomycin hydrochloride calcium chloride double salt. For the diffusion experiments the second sample of commercial streptomycin was used. For the diffusion experiments 2,000 micrograms of streptomycin was injected into the vitreous in 0.1 cc. of sterile isotonic sodium chloride solution. For the toxicity experiments two doses were used, 1.2 mg. and 3.0 mg., injected in 0.1 cc. isotonic sodium chloride solution. In these latter experiments the eyes were observed at regular intervals for twelve to one hundred and twelve days and the changes noted. The eyes were then removed and examined histologically. It was found that intravitreous injection of 2,000 micrograms of streptomycin acts as a depot from which streptomycin diffuses away slowly, chemotherapeutic concentrations still being present in the ocular fluids after three days. This slow rate of diffusion of streptomycin suggests that a single intravitreous injection of streptomycin might well be sufficient to deal with certain ocular infections in man. On the other hand, the present investigations revealed clearly that even 1.2 mg. of pure streptomycin produces serious and permanent retinal damage.

Subconjunctival Penicillin in Infected Corneal Ulcers.—Rizk resorted to subconjunctival injections at a time when there was a shortage of penicillin in Egypt. Patients dislike subconjunctival injections. Two instillations of 1 per cent tetracaine hydrochloride solution at three minute intervals while the eyes are closed are harmless to the epithelium and produce sufficient anesthesia to allow the prick of the needle to be done almost painlessly. Apart from the prick of the needle, the mere infiltration of fluid under the conjunctiva causes some pain. This pain can be easily abolished if 1 per cent procaine hydrochloride solution in nonpyrogenic distilled water is used instead of simple distilled water in the preparation of penicillin solution. A concentration of 20,000 units per cubic centimeter was found to be satisfactory in cases in which 10,000 units per cubic centimeter was not satisfactory. To a bottle of 100,000 units of crystalline penicillin salt, 5 cc. of 1 per cent procaine hydrochloride solution in distilled nonpyrogenic water was added, and 0.5 cc. was injected subconjunctivally twice daily. The eye is opened and partially fixed by a pair of Desmarres' retractors applied to the lids with their tips introduced into the fornices if the patient is unable to open and fix his eye while the injection is being given subconjunctivally at a distance of 2 to 3 mm. from the limbus. Ten injections are usually sufficient, and after that hot fomentations can be used. This method of treatment yields better results than the older methods, in which general sulfonamide therapy or foreign protein therapy formed a part of the treatment.

British Journal of Radiology, London

21:373-430 (Aug.) 1948

Place of Physics in Training of Medical Radiologists. G. Stead.—p. 373.
*Angiocardiography in Diagnosis of Congenital Heart Disease. K. D. Keele.—p. 380.
*Angiocardiography Applied to Congenital Heart Disease: Observations on Radiology and Technic. J. A. Brocklebank.—p. 393.
Calcified Splenic Infarctions: Report of Case. G. L. Hardman.—p. 398.
Multiple Tuberculous Lesions of Spine. J. L. Feuchtwanger.—p. 400.
Irradiation Treatment of Carcinoma of Breast. F. M. Allchin and C. W. Wilson.—p. 406.
Time-Intensity Factors in X-Irradiation. E. Paterson and M. V. Thompson.—p. 414.
Negative Feed-Back Dosage-Rate Meter. R. J. Herbert.—p. 420.
Note on Self-Sealing Insulator for High Pressure Ionization Chamber. J. Read.—p. 425.

Angiocardiography in Congenital Heart Disease.—Keele points out that as surgical methods of treatment have become available for patent ductus arteriosus, coarctation of the aorta and Fallot's tetralogy, the problem of accurate diagnosis of congenital heart disease has assumed increasing importance. Angiocardiography provides a method whereby this necessary accuracy may be obtained. The shapes of the cardiac chambers differ in some respects from the anatomic descriptions founded on dissections of the cadaver. Reasons for these differences are suggested. Examples of abnormal angiocardiograms in a variety of congenital heart lesions are shown to illustrate the diagnostic value of the method. The author believes that angiocardiography should be used in any case of congenital heart disease where operation is being considered, as with patent ductus arteriosus and coarctation of the aorta, since it may not only provide proof of the suspected lesion but also reveal others.

Technic of Angiocardiography in Congenital Heart Disease.—According to Brocklebank, angiocardiography signifies an advance in the accurate diagnosis of congenital heart disease. The described method demonstrates that this is practicable with standard roentgenographic apparatus. Considerable improvement in technic and in the diagnostic value of the method can be expected as special accessories are developed and as more of the factors are more fully understood. Much yet remains to be explained in the appearances shown in the roentgenograms, and interpretation will improve with experience and as the results are compared with the findings of cardiac surgery. As at present practiced the method appears to be a safe and useful diagnostic procedure.

British Medical Journal, London

2:281-322 (Aug. 7) 1948

Antihistamine Substances. H. Dale.—p. 281.
Caffeine and Gastric Secretion. D. R. Wood.—p. 283.
Rectal Cancer and Preservation of Function. E. G. Muir.—p. 286.
Clinical Features of Mustard-Gas Poisoning in Man. D. C. Sinclair.—p. 290.
Treatment of Typhoid Carriers with Penicillin and Sulphathiazole. R. M. Fry, R. E. Jones, B. Moore and others.—p. 295.
Paratyphoid Osteomyelitis: Report of 2 Cases. R. Rozansky, E. N. Ehrenfeld and Y. Matoth.—p. 297.
Salmonella Oranienburg Septicemia: Report of a Further Case. C. N. Partington and T. V. Cooper.—p. 298.

2:323-364 (Aug. 14) 1948

Recent Advances in Knowledge of Rh Factor. D. F. Cappell.—p. 323.
Preliminary Note on Influence of Heterospecific Immunization on Production of Rh Antibodies. J. J. van Loghem.—p. 326.
How Important is Transfusion as a Cause of Hemolytic Disease of Newborn? G. Discombe and H. O. Hughes.—p. 329.
Evolution of Gastric and Duodenal Ulceration. J. D. Craig.—p. 330.
Some Problems of Causalgic Pain: Clinical and Experimental Study. J. A. W. Bingham.—p. 334.
*A Fatal Case of Myelitis After Antirabic Vaccine. I. Ansell.—p. 338.

Fatal Myelitis After Antirabic Vaccine.—Ansell reports the case of a soldier, aged 26, who was serving in India. He had been well until a few days before his admission to hospital on July 9, 1946, when he first complained of fever and pains in his limbs. He had been bitten by a healthy puppy fourteen days previously, and had received twelve antirabic injections, starting two days after the incident. The dog was said to be still healthy and the course was thereupon stopped. The author presents a detailed clinical history and a necropsy report and says that this was not a case of rabies but probably of polyneuritis or myelitis due to the antirabic vaccine, the former being less likely in view of the absence of sensory changes. An alternative cause for the ascending myelitis could be acute

anterior poliomyelitis, particularly as the latter is endemic in this part of India. In the reported case, killed carbolized vaccine was given, and skin sensitivity in the form of prominent reactions at the sites of inoculation was manifested. The balance of evidence would seem to be in favor of acquired anaphylaxis as the causation in this case. Antirabic treatment should be given only when the correct indications are present. A healthy dog should be kept under observation for the usual ten days before treatment is begun, except, possibly, in cases of severe bites on the face. A family or personal history of allergy indicates the need for preliminary skin tests for sensitivity, and if excessive local reactions occur during treatment the desirability of desensitization should be considered. If the neuroparalytic complications have already made their appearance, then, in view of the serious prognosis, especially in the Landry type, it would be worth while to try out the effect of antihistamine drugs on the basis of the allergic theory. An iron lung should be available in case of respiratory failure. The usual precautions during antirabic treatment—avoidance of unnecessary exertion and of alcohol, and provision of adequate rest—should be strictly enforced.

Journal of Laryngology and Otology, London

62:487-550 (Aug.) 1948

Experimental Studies on Reliability of Audiometry. R. E. C. Brown and E. D. D. Dickson.—p. 487.
Metastatic Brain Abscesses and Encephalitis of Otitic Origin. P. G. Gerlings.—p. 525.
Note on Articulation of Auditory Ossicles and Related Structures. D. V. Davies.—p. 533.

Journal of Pathology and Bacteriology, Edinburgh

60:1-156 (Jan.) 1948. **Partial Index**

Melanin-Forming Epidermal Tumours of Skin: Study of 57 Personally Observed Cases. M. J. Stewart and Georgiana M. Bonser.—p. 21.
New Salmonella Type: Salmonella Chittagong. Joan Taylor, W. Hayes, J. Freeman and E. S. Anderson.—p. 35.
Analysis of Certain Factors Associated with Production of Experimental Dissection of Aortic Media, in Relation to Pathogenesis of Dissecting Aneurysm. J. S. Robertson and K. C. Smith.—p. 43.
Massive Colony Formation of Bacterium Friedländeri in Liver in Agranulocytosis. Jane I. Davidson.—p. 51.
Thrombosis as Factor in Pathogenesis of Aortic Atherosclerosis. J. B. Duguid.—p. 57.
Nature of Anemia in Leukemia. D. H. Collins and W. McI. Rose.—p. 63.
New Mycobacterial Infection in Man. P. MacCallum, Jean C. Tolhurst, G. Buckle and H. A. Sissons.—p. 93.

Lancet, London

2:205-240 (Aug. 7) 1948

Cirrhosis of Liver in Ceylon and Its Relation to Diet: Review of 102 Cases. P. B. Fernando, O. R. Medonza, and P. K. Rajasuriya.—p. 205.
Acute Atropine Poisoning: Review of Eight Cases. R. B. Welbourn and J. D. Buxton.—p. 211.
Experiments with Occlusive Dressings of New Plastic. J. P. Bull, J. R. Squire and E. Topley.—p. 213.
Vitamin E (Tocopherols) in Collagenoses. J. F. Burgess.—p. 215.
Occupational Aneurysm of Palmar Arch: Report of Case. D. W. Short.—p. 217.
Associated Ectopic Anus and Uterus Didelphys: Report of Case. A. J. Underwood-Whitney.—p. 218.
Pyloric Obstruction with Tetany and Coma: Report of Case. H. G. Ungley.—p. 218.

Medical Journal of Australia, Sydney

2:85-112 (July 24) 1948

Pathologic Physiology of So-Called Pyramidal Syndromes. C. G. Lambie and B. D. Wyke.—p. 85.
Nasal Desensitization in Allergy. G. Doyle.—p. 94.
Pulmonary Tuberculosis in South Australia. R. B. Lewis.—p. 97.

Proceedings of Royal Society of Medicine, London

41:409-484 (July) 1948. **Partial Index**

Transperitoneal Dialysis. R. W. Reid:—p. 413.
Dialysis of Blood for Treatment of Uremia. E. M. Darmady.—p. 419.
Artificial Kidney: Its Clinical Application in Treatment of Traumatic Anuria. E. G. L. Bywaters and A. M. Joekes.—p. 420.
Acute Infantile Hemiplegia. W. G. Wyllie.—p. 439.
Thiersch's Operation for Anal Incontinence. W. B. Gabriel.—p. 467.
Anorectal Malignant Melanoma. R. W. Raven.—p. 469.
Spreading Ulceration of Skin Associated with Idiopathic Ulcerative Colitis. E. C. B. Butler.—p. 474.
Anesthesia in Babies and Children. R. W. Cope.—p. 479.

Journal de Médecine de Lyon, Lyons

29:613-642 (Sept. 5) 1948. **Partial Index**

Esophago-Aerial Fistulas in Cancer of Esophagus. M. Levrat and G. Despierres.—p. 613.
*Why is it That Vaccination Increases the Incidence of Diphtheria in Nonvaccinated Persons? The Clue to An Enigma. R. Rendu.—p. 617.
Hazards of Cold Permanent Waves. P. J. Michel and J. Saint-Paul.—p. 625.

Vaccination and Increased Incidence of Diphtheria.—According to Rendu, French, Danish, Italian and Polish statistics of children in seven towns of these four countries show that during the period 1905 to 1933, when antidiphtheritic vaccination was not yet practiced, diphtheria occurred in 2,182 of 645,327 children; i. e., a morbidity rate of 3.38 per thousand per year. During the period 1935 to 1946, when antidiphtheritic vaccination was practiced on a large scale, diphtheria occurred in 2,568 of 644,010 vaccinated or unvaccinated children, a morbidity rate of 3.98 per thousand per year; diphtheria occurred in 1,684 of 154,321 unvaccinated children, a morbidity rate of 10.9 per thousand per year, and in 884 of 489,689 vaccinated children, a morbidity rate of 1.8 per thousand per year. Thus in these seven cities where three quarters of the children had been vaccinated, the average incidence of the disease among the unvaccinated seems to be three times higher after vaccination had been practiced on a large scale than before it was practiced, while the total morbidity rate has not been reduced. These paradoxic phenomena may be explained by incorrect statistical technics which do not take into consideration important facts such as epidemic bouts caused by the influx of new contingents of the population, influence of the seasons on the incidence of diphtheria and influence of the age of the children. The first injection of diphtheritic anatoxin renders the children hypersusceptible to the disease because of the reduced resistance of the organism resulting from the vaccinal shock. Vaccinated and unvaccinated persons must be compared with one another during the same lapse of time in order to provide statistical data of value. A large number of unvaccinated children represent those in whom vaccination was contraindicated by acute or chronic pathologic conditions, and who, therefore, are most susceptible to diphtheria. These statistical errors are responsible for the increased incidence of diphtheria in the unvaccinated children and for the drop in the incidence in the vaccinated.

Klinische Wochenschrift, Heidelberg

26:385-416 (July 1) 1948. **Partial Index**

*Anatomicopathologic Observations on Cadavers of Patients Treated with Urethane. E. Letterer.—p. 385.
*Treatment of Non-Leukemic Diseases, Particularly of Lymphogranulomatosis with Urethane. H. E. Bock.—p. 390.
Experimental Investigation on Effect of Urethane on Phagocytosis, on Stellate Cell Storage and on Inflammation. W. Masshoff, W. Heinzel, G. D. von Rom and M. Siess.—p. 397.
Regulation of Albuminous Substance in Plasma. IV. Report. Plasma Albumin and Typhoid Fever. H. Pickert.—p. 400.

Postmortem Studies After Treatment with Urethane.—Letterer reports necropsy studies on 2 men aged 60 and 69 treated with urethane for lymphogranulomatosis, on a woman aged 59 treated with urethane for hypernephroma and on a man aged 67 treated for leukemic myelosis. Death resulted from pneumonia in all cases, from lobar pneumonia in 1 and from terminal bronchopneumonia in 3. The aleukocytic character of the microscopic picture of the pneumonias was striking; in addition there was noted a large number of causative agents in the alveoli of the lungs. The deficient formation of granulocytes was probably responsible for the weakening of the leukocytic defense, for the spread of the causative agent and for the atypical course of the pneumonic infiltration. Pneumonia with agranulocytosis is a reaction likely to result from treatment with urethane. The drug is responsible for the atrophy of leukocytes in normal lymph nodes and in those affected by lymphogranulomatosis. There is a simultaneous collagenization of the reticular fibers and a fibrosis of the entire lymph node; thus the lymphogranuloma becomes obliterated. The lymphocytes in the follicles of the spleen disappear and there is a simultaneous numerical decrease of nuclei in the pulp and a thickening of the sinus walls. There is no general decrease in the cells of the bone marrow; the maturing segmental forms

disappear, while the number and the shape of the primary forms remain unchanged in the normal and in the leukemic marrow.

Urethane in Nonleukemic Diseases.—Bock treated 6 patients with lymphosarcomatosis by oral or rectal administration of 4 to 6 Gm. of ethyl urethane daily. In 5 of these patients there was only a temporary regression of the enlargement of the lymph nodes and of the spleen. Satisfactory results were obtained in 1 case of round cell sarcoma, but it is still too early for definite conclusions. Irradiation therapy may be omitted only in cases in which rapid improvement takes place. The treatment of malignant tumors with urethane failed most frequently because of the subjective and objective intolerance of the drug. The granulopoiesis was very sensitive to the drug in all cases. More satisfactory results were obtained in 8 cases of lymphogranulomatosis in 4 men and 4 women. Fresh cases with atypical proliferation of reticulum cells and with considerable capillarization showed the best and most rapid response. There was, however, no definite recovery which would have made further treatment with urethane dispensable. Granulopoiesis required constant control. Functional agranulocytosis may precede numerical neutropenia. The patient should be treated with penicillin and "de-ma," a preparation containing a mixture of equal parts of methylsulfapyrimidine and of 4-aminomethylbenzene sulfonamide salt of sulfathiourea. A sudden drop in erythrocytes requires discontinuation of urethane. With increased proliferation, the erythropoiesis also becomes sensitive to urethane although to a lesser extent than the granulopoiesis. Urethane is poisonous for mitosis, but its predominating toxic effect is on the metabolism of the nuclei by attacking proliferating cells in various phases. In this process a substance may be produced which causes the disappearance of megaloblasts and the appearance of reticulocytes in the periphery. Urethane also attacks the protoplasm in the ferment systems, and this effect may be manifested by peroxidase clots in granulopoietic cells. The effect of urethane is reflected only inadequately in the total consumption of oxygen by the bone marrow and blood.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

92:1897-1988 (June 26) 1948. **Partial Index**

Familial Scleredema Adultorum (Buschke) Beginning at the Nates. G. G. Jagtman.—p. 1906.
Vitamin A in Treatment of Nongonorrheal Urethritis in Men. W. Stigter.—p. 1914.
*Leukemia and Salmonellosis (S. Dublin). W. H. H. Tegelaers, G. M. H. Vecneklaas, A. Clarenburg and H. H. Vink.—p. 1919.

Leukemia and Salmonellosis (S. Dublin).—Tegelaers and his associates present the case of a 2½ year old child, daughter of a stock breeder, who had acute lymphatic leukemia and salmonellosis. Bacteriologic examination of the blood revealed Salmonella dublin. The agglutination titer of the patient against this type of organism was 1:1,600. The feces also contained S. dublin. Since S. dublin occurs frequently in cattle, an examination was instituted to ascertain whether the salmonella infection in the child was in any way connected with a germ carrier in the cattle. A cow was found to excrete regularly with the feces a large number of S. dublin organisms. It may be assumed that the salmonellosis in the little patient had arisen secondarily to the leukemia.

Prensa Médica Argentina, Buenos Aires

35:1425-1462 (July 23) 1948. **Partial Index**

*Antituberculosis BCG Vaccination in Cordoba, Argentina. G. Sayago, A. Chattas and A. P. H. Degoy.—p. 1425.
Typhoid Fever: Complications. Statistical Study of 1300 Cases. H. Rugiero, L. Charosky and H. Galli.—p. 1435.

BCG Vaccination.—Sayago and collaborators report on a large group of infants and children given BCG vaccination and a large group of infants and children who were not given the vaccination. The general mortality within the first year of life reached 8.3 per cent among the vaccinated and 15.6 per cent among the control group. A weak degree of tuberculin sensitivity was prevalent among the vaccinated in contrast to the strongly positive results of Mantoux's test eventually found in children belonging to the control group. Chest roentgen examinations performed on the vaccinated group disclosed 57.5 per cent of lesions among children with tuberculous contact and 18.9 per cent among the noncontacts, while in the control group there were 74.3 per cent of lesions in children exposed and 47.6 per cent in the noncontacts. In addition the roentgenograms in the vaccinated group proved to be less important than the ones seen, in the nonvaccinated children, especially in the case of primary infection when the sole lymph node enlargement could be detected in the former.

Revista Chilena de Pediatría, Santiago

19:371-440 (May) 1948. **Partial Index**

*Streptomycin in Abdominal Tuberculosis in Children. R. Matte, S. Ibáñez and A. Trautmann.—p. 371.
*Poliomyelitis: Epidemiologic and Sanitary Aspects. H. Romero and R. Armijo.—p. 389.

Streptomycin in Abdominal Tuberculosis.—Matte and his collaborators gave streptomycin to 10 children, between the ages of 6 and 12 years, with intestinal, peritoneal or both forms of tuberculosis. The disease was acute in all cases. It complicated pulmonary tuberculosis in some of the cases. The drug was administered in daily doses of 1 Gm. for the first and 0.5 Gm. for the second month. In some cases the treatment lasted for three consecutive months on the same dose schedule. The daily dose was given in fractional doses at intervals of eight hours for the first month and of six hours for the second month. Immediate and late results were satisfactory. The good results persist, after a period of two to seven months after discontinuation of the treatment.

Poliomyelitis.—Romero and Armijo studied the clinical records of 515 children with poliomyelitis who had been observed in different children's hospitals of Santiago since 1920. The disease was previously sporadic. Since 1935 it has been epidemic. The acuteness of the disease and the number of cases increase every year. The seasonal and age distribution are similar to classical descriptions. Few cases with transitory paralysis or paresis were observed. The bulbar type was rare. In spite of the low mortality, it is believed that in future there may be more serious forms with a tendency for the disease to occur in adults.

Strasbourg Médical

108:197-208 (June 25) 1948

*Treatment of Leukemias with Urethane. Results Obtained at Medical Clinic A. A. Fitzenkam and R. Voegtlin.—p. 197.
Actual Orientation in Neuropsychiatry of Children. M. Mathis.—p. 201.
Precocious Anti-Rhesus Immunization in Course of Pregnancy. Pathogenic Considerations. R. Keller, R. Waitz, J. Fourcade and L. Grimault.—p. 203.

Urethane in Leukemias.—Fitzenkam and Voegtlin treated 9 patients, 7 men and 2 women between the ages of 15 and 66 years, 4 with chronic lymphoid leukemia, 2 with myeloid leukemia and 3 with subacute and acute leukoblastosis, by administration of 3 Gm. of urethane daily for seven days to two and one half months. Results showed that acute or subacute leukoblastosis do not offer any indication for treatment with urethane. Death occurred in 2 of the authors' cases. Chronic myeloid leukemia may be considered as a primary indication for treatment with urethane, not only because of the reduced leukocytosis but also because of the general improvement, the definitely reduced splenomegaly and the normalization of the leukocytic formula. In 2 of the patients with chronic lymphoid anemia the leukocyte rate was reduced; in certain of these cases urethane may control the proliferation of leukocyte-forming tissue or it may prevent the passage of pathologic elements into the circulating blood. In 3 cases with or without a drop in the leukocyte count, 1 of which was fatal, the adenopathy did not subside or showed only little improvement. In 1 case it was definitely increased and in 1 the signs of pyramidal irritation remained unchanged. Urethane should be given a trial in early cases of lymphoid anemia in addition to roentgen therapy, while in advanced cases only roentgen therapy combined with blood transfusions should be practiced. In cases in which roentgen treatment proved effective, urethane may be administered between the irradiation series, and may be useful in preventing recurrences. Nausea was associated frequently with treatment with urethane, but the accident that is to be dreaded most is the blocking of the normal hemopoietic system.

Book Notices

Diseases of the Ear, Nose and Throat. By William Wallace Morrison, M.D., Professor of Otolaryngology and Attending Otolaryngologist, New York Polyclinic Medical School and Hospital, New York. [New edition.] Cloth. Price, $8.50. Pp. 772, with 359 illustrations. Appleton-Century-Crofts, Inc., 35 West 32nd St., New York 1, 1948.

Morrison's book was originally published under a different title and has now been reissued in a revised edition. In forty-four chapters the author has succeeded in incorporating much of the up-to-date material in otolaryngology. Considerable literature is represented. Although he states in his foreword that the book is intended for the undergraduate student and general practitioner, he has included rather advanced material that would not be considered applicable for this group. For example, much space is devoted to the description of the fenestration operation for otosclerosis and other advanced surgical procedures that certainly would not be carried out by a non-specialist physician. The introductory chapters pertaining to history taking are of utmost convenience to the general practitioner, providing adequate material for his diagnosis.

While one can feel that the author's own line drawings involved considerable work, there is a question whether these would be acceptable from the standpoint of what is considered valuable in modern medical illustration, especially when such outstanding artists are available. The photomicrographs, for example, surely would be much enhanced by the use of originals, and the anatomic illustrations, although duplicated from standard drawings, lack authenticity in correctness.

A number of therapeutic considerations still remain to be brought up to date. The most recent material on the employment of antibiotics in otolaryngology is included. The author includes a 10 page formulary of his prescriptions. There is also an excellent symptom index which surely will be advantageous to the reader. The organization of chapter material presented from an etiologic to a treatment point of view is good, although the important phase of differential diagnosis is somewhat deficient.

Management in Obstetrics. By Andrew M. Claye, M.D., F.R.C.S., F.R.C.O.G., Professor of Obstetrics and Gynæcology, University of Leeds, Leeds. Oxford Medical Publications. Fabrikoid. Price, $3.75. Pp. 186, with 17 illustrations. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London, E.C. 4, 1948.

This small book deals only with management of obstetrics, as indicated in the title. At the beginning of most of the thirty-six chapters there are quotations, mostly from Shakespeare, which show that the author has an excellent sense of humor. For example, at the head of the chapter "Abortion" is the quotation, "Like ships that sailed for sunny isles, but never came to shore"; in the chapter on "Twins" is "Double, double, Toil and Trouble"; in the chapter on "Breech in Pregnancy" is "Turn, hell-hound turn," and in the chapter on "Hydramnios" is "Too much of water hast thou, poor Ophelia."

The book contains much useful advice and many worth while recommendations. It is tersely written and usually dogmatic, but since the treatment prescribed is sound and practical this is no criticism. There are only seventeen illustrations, but, of course, this small book was intended to be used in conjunction with one of the large standard textbooks of obstetrics. For its limited field the book can be recommended highly.

Bronchiogenic Carcinoma and Adenoma. With a Chapter on Mediastinal Tumors. By B. M. Fried, M.D., Associate Attending Physician, Montefiore Hospital for Chronic Diseases, New York. Cloth. Price, $6. Pp. 306, with 118 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

This addition to the already voluminous literature on carcinoma of the lung is written by an author who has had a large clinical experience with the disease. It is written for the clinician. The material is presented in twelve chapters and three supplements interposed into the text. There are chapters on incidence, pathologic anatomy, histogenesis and classification, alveolar cell cancer and adenomatosis of the lungs, etiology, metastases, clinical manifestations, tumors of the superior pulmonary sulcus, laboratory methods of diagnosis, treatment, bronchiogenic adenoma, mediastinal tumors, and others.

Despite this imposing array of titles, the subject of cancer of the lung and mediastinal tumors is not completely covered. There are many omissions. On the other hand, there is a long chapter on hypertrophic pulmonary osteoarthropathy, and many digressions are made into interesting but nonessential subjects. Case reports are used to illustrate many points.

Probably no other major form of cancer has become surrounded by so many points of controversy as has carcinoma of the lung. The author expresses definite views on many of them. Thus, he accepts the theory of "chronic irritation" in etiology, and the basal cell of the bronchi in histogenesis ("primary carcinoma of the lungs is only bronchiogenic in origin"). He combines the concepts of alveolar cell carcinoma and adenomatosis (jaagsiekte), although on the basis of what evidence is not clear. In microscopic classification, oat cell and anaplastic tumors are regarded as varieties of squamous cells! He believes that an increase in cancer of the lung is more apparent than real.

This book, despite its good points, is recommended with reservations because of errors of fact, which are most numerous in the chapters on etiology and on pathologic anatomy, histogenesis and classification. It is not "well established that one of the factors leading to the development of a cancer is chronic inflammation (irritation) which causes degeneration of cells, followed by an excessive regeneration." It is also untrue that pulmonary tumor in mice . . . "never causes death of the animal," or that in influenza "the changes in the lungs caused by the supposed pathogen have never been fully described." The book could be greatly improved by additional editing.

Arterial Hypertension. By David Ayman, M.D., Instructor in Medicine, Tufts College Medical School, Boston. Edited by Henry A. Christian, A.M., M.D., LL.D. [Reprinted from Oxford Loose-Leaf Medicine with the same page numbers as in that work.] Cloth. Price, $2.50. Pp. 508 (173)-508 (265), with 9 illustrations. Oxford University Press, 114 Fifth Ave., New York 11, 1948.

This book opens with a brief foreword by Henry Christian, in which he states, "Dr. Ayman has had an extensive experience with hypertensive patients, whom he has subjected to long continued, thorough, clinical study in the homes of the patients, in the out-patient clinic, and in the wards of a hospital, before, after and when undergoing various forms of treatment, including sympathectomy . . ." This evidence of the author's qualifications to write on the subject of arterial hypertension becomes more and more impressive as the book is read. Dr. Ayman is writing from first hand information, from personal observations of hypertensive patients under a variety of conditions, and he interprets the results of his studies in an unbiased, objective manner.

Although this work is largely the result of the author's careful studies of a large number of cases, treated in a variety of ways, he is thoroughly familiar with the vast literature on the subject and frequently refers to the work or opinions of others. The chief value of the book, however, is the wealth of personal observations, evidently carefully recorded, and presented in a clear, simple style.

This work on hypertension is conveniently divided into numerous subdivisions. After a brief introduction and history of the disease, the possible causation is considered with emphasis on the hereditary nature of the condition and the possible nervous and psychosomatic factors. Experimental hypertension is discussed, but the author does not consider hypertension in man and the experimental animal as related. He considers the etiology of human arterial hypertension as absolutely unknown.

The pathologic physiology and gross and microscopic pathologic changes are briefly discussed, as are the constitutional type and personality of the hypertensive patient.

An excellent description of the symptoms and evolution of hypertension from its earliest stages to the most severe malignant type is given. This portion of the book is particularly commended and can be read with profit by students and practitioners alike. The physical and roentgen findings and electrocardiographic changes are briefly but clearly covered.

Particularly important is the section on treatment of the various manifestations of hypertension and of the elevated blood pressure, the latter being correctly considered as only a part of the over-all picture of the disease called arterial hypertension.

It is unusual in a work of this type to consider separately the treatment of psychoneurotic, vasospastic and organic symptoms, but it seems much worth while.

The surgical treatment of hypertension by splanchnicectomy is fairly presented; contrary to the view held by many internists, this author, basing his opinion on close personal observation, considers that the operation has definite value.

The usual medical treatment, including the use of potassium thiocyanate, is of course included. A bibliography of 99 titles, all referred to in the body of the book, and a useful index complete the volume. It is definitely recommended as a clear, concise exposition of arterial hypertension and its treatment.

Fundamentals of Immunology. By William C. Boyd, Ph.D., Associate Professor of Biochemistry, Boston University School of Medicine, Boston. Second edition. Cloth. Price, $6. Pp. 503, with 50 illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3, 1947.

This widely accepted standard treatise on immunology is highly recommended as collateral reading for all graduate students in the medical sciences and medical and veterinary students. Its wealth of basic material and comprehensive bibliographies make it a valuable reference work for the advanced student of immunology and the practicing physician.

The second edition retains all outstanding features of presentation and organization that characterized the original work. The two most notable improvements in its organization are the addition of excellent summaries at the end of each chapter and the elimination of passages in small type. Bibliographies have been brought more nearly up to date and provide a broad coverage of fundamental source material.

Much new material has not been added; however, much of the old material has been worked over and rewritten in the light of more recent experimental data. A thorough going discussion of the Rh antigen and all of its medical implications has been added. The methanol precipitation method of purifying bacterial toxins and the use of ultraviolet irradiation for inactivation of various virus vaccine preparations are discussed.

Detailed chapters on anaphylaxis and allergy, allergy and immunity, practical use of immunity, and laboratory and clinical technic are included.

Minor Surgery. By Frederick Christopher, B.S., M.D., F.A.C.S., Associate Professor of Surgery, Northwestern University Medical School, Chicago, Ill. Sixth edition. Cloth. Price, $12. Pp. 1058, with 937 illustrations. W. B. Saunders Co., W. Washington Sq., Philadelphia 5, 1948.

The sixth edition does not vary greatly from previous editions except in an obviously successful effort to keep abreast with progress in surgical science. All the newest advances which have gained acceptance as useful technics are included. The number of references is enormous and direct quotations are employed with advantage. Numerous forms of therapy are cited. In the treatment of so-called minor surgical problems there are often many ardently advocated methods, whereas in the major surgical fields the advocated technics are fewer but the discussions are equally heated. This leads one to the conclusion that minor surgery is that performed by every clinical physician and surgeon, and major surgery is that performed only by specialists. A good definition!

A Symposium on the Use of Isotopes in Biology and Medicine. By Hans T. Clarke and others. [Addresses Delivered at an Institute Held at the University of Wisconsin from September 10 to September 13, 1947.] Cloth. Price, $5. Pp. 445, with illustrations. University of Wisconsin Press, Madison, Wisconsin, 1948.

This symposium is an authoritative collection of papers presented by men prominent in the field of radioisotopes in medicine and biology. Important uses of isotopes in biology and medicine are adequately covered in not too lengthy chapters. Use of isotopes as tracers in protein, fat, carbohydrate and mineral metabolism is discussed in some detail. The present status of radioiodine in the study of thyroid physiology and treatment of hyperthyroidism is well covered. The uses of radiophosphorus in the treatment of certain blood diseases, as well as the application of numerous other isotopes as diagnostic aids in health and disease, are presented.

Of great importance to the physician are the sections dealing with the production and availability of isotopes, the proper methods of handling and measuring them and the necessary safeguards against the health hazards in connection with their use.

Finally, there are papers discussing the international, political, and social aspects of atomic energy and its role in the future.

Electroencephalographic Study of Neuropsychiatric Disorders: Covering 159 Cases of Epilepsy, 53 of Suspected Epilepsy, 122 of Nonepileptic Abnormality and 101 Control Cases. By Torsten S:son Frey. From the Swedish by Helen Frey. Acta psychiatrica et neurologica, Supplementum XLII. Paper. Pp. 172, with 19 illustrations. Stockholm, 1946.

Investigations on the Basis of Rational Electrotherapy of Paretic Muscles. By Svend Clemmesen and Erik Skinhøj. Acta psychiatrica et neurologica, Supplementum XLIII. Translated from the Danish by Axel Andersen. Paper. Pp. 53, with 19 illustrations. Ejnar Munksgaard, Nørregade 6, København, K, 1947

"Electroencephalographic Study of Neuropsychiatric Disorders" is a review of the literature of electroencephalography up to 1944 and a general discussion of technical difficulties in performing this diagnostic test. Types of electrode placements and difficulties inherent in the so-called indifferent electrode are discussed. The ear is considered a source of electrical activity from the nearby temporal lobe. Some of the artefacts that make interpretation of electroencephalograms difficult and quantitation of the procedure and its limitations are handled clearly.

In the author's series, over 20 per cent showed abnormal records. This is higher than in other series reported either in this country or abroad, and is probably explained by the method established to quantitate insignificant variations from normal. Handling of his clinical material makes dull reading. There is a plethora of tables and minutiae concerning all the data available. Positiveness about specific personality characteristic of patients with epileptic seizures is, of course, not accepted by the best neurologists and psychiatrists and his data in this regard are entirely inadequate.

Specialists in electroencephalography would find the volume of interest, but it is not recommended to neurologists or psychiatrists, because it contains far too much detailed material.

"Investigations on the Basis of Rational Electrotherapy of Paretic Muscles" actually contains three articles: (1) "On the Value of Electrotherapy in Treatment of Flaccid Paresis," (2) "On Choice of Form, Intensity and Duration of Impulse" and (3) "On Intensity Duration Curves (I/T Curves)."

In the first article there is an interesting discussion on electrotherapy in the treatment of paretic muscles, but it does not cover all the literature.

The authors give detailed wiring diagrams and descriptions of apparatus and data to show that the most effective type of electrical stimulation is the square wave of a duration of around 25 milleseconds, whereas round waves and pointed waves are not so effective. There is an important technical note on the ingenious method which the authors use in varying voltages mechanically by means of an arm on a potentiometer activated by movement of the muscles so that the myogram can be converted quantitatively to a recorded electric pulsation on the same screen, or bromide paper, as the stimulus current.

The third paper, contains well known data on strength duration curves. This confirms data already in the literature.

Both these books represent much effort on the part of these investigators during war years when equipment and funds were difficult to obtain. Criticism, therefore, should be tempered with an understanding of these handicaps. Both of these are worth having in a neurophysiologic laboratory for specialists in this technic.

Peripheral Vascular Diseases: Diagnosis and Treatment. By David W. Kramer, M.D., F.A.C.P., Associate Professor of Medicine, Jefferson Medical College, Philadelphia. Foreword by Edward L. Bortz, M.D. Cloth. Price, $8. Pp. 620, with 157 illustrations. F. A. Davis Co., 1914-16 Cherry St., Philadelphia 3, 1948.

This volume successfully conveys a practical approach to the problem of peripheral vascular disease. The author presents numerous illustrated histories to emphasize practical points. The discussion is excellent. General practitioners will find this an especially useful bridge to their approach to a neglected but large field of medical understanding.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

GIRLS' BASKETBALL

To the Editor:—Does playing basketball injure girls? Some physicians say that it is too strenuous. Should basketball be avoided during menstruation?

J. O. Helm, M.D., New Florence, Mo.

ANSWER.—Basketball can be played safely by girls if the following precautions are taken: (1) Examination by a physician to determine fitness for strenuous exercise, (2) use of girls' rules, which limit activities to zones on the court, (3) assurance that the contesting teams are reasonably well matched in age, size and training and (4) proper control and supervision.

Basketball with these precautions should not be more dangerous for the girl than for the boy. Though some girls can play basketball during menstrual periods without difficulty, many others will find it wise to omit such strenuous exercise for the first day or two of each menstrual period. This individual difference can be determined only by personal experience.

ONYCHAUXIS

To the Editor:—A patient was seen with herpes zoster involving the sixth dorsal segment on the right. This was a minimal attack with little pain or discomfort. Her physical examination evolved no other abnormalities except for a condition of onychauxis involving all the nails of both hands and feet. There was pronounced hyperkeratinization of the nails and piling up in the typical irregular fashion. The basal metabolic rate was —18 per cent. She had taken thyroid previously with some benefit, but without effect on the condition of the nails. She disclosed that twice during pregnancies her nails gradually returned to normal and remained normal until two or three months after delivery. Then there was a gradual recurrence of the abnormal condition. Is there information available which might lead to a rational treatment of this condition?

Seth W. Ellis, M.D., Anderson, Ind.

ANSWER.—This case of onychauxis, like others of this type, is difficult to analyze completely for causation. The basal metabolic rate of — 18 per cent might point to a partial solution, although thyroid therapy has not materially helped. Dystrophies of the nails have been observed in cases of hypothyroidism, but the clinical picture is usually that of decrease of size, brittleness and longitudinal and transverse grooving. It is difficult to determine the cause of the decided improvement during and shortly after pregnancy. Naturally, an endocrine angle might be suspected, but nothing can be elucidated in a tangible way. Extraneous factors, as the application of nail polish, can be ruled out because of the concomitant involvement of the toe nails. In some of these cases the condition responds well to large doses of vitamins A and D. It takes six to eight weeks to effect improvement. At that time, thyroid medication can also be added if the improvement is slow.

ALOPECIA AREATA

To the Editor:—A man of Greek extraction, aged 40 years, reported that he is losing hair in the beard regions and has been for the past two weeks. He has no other complaints. He has no loss of weight, and no apparent dermatologic condition at present. He has a history of syphilis some fifteen or twenty years ago, for which he received apparently adequate treatment. Physical examination reveals bilateral symmetric loss of beard on each side of the mandible for about 3½ to 4 inches (8.9 to 10.2 cm.) in area and getting larger. Blood sugar was essentially normal, as were the serologic reactions. An attempt to demonstrate fungous growth of the skin failed. What other possibilities exist? I have considered pituitary or adrenal syndromes as possibilities.

J. J. Stark, M.D., Belpre, Ohio.

ANSWER.—The patient apparently has alopecia areata affecting the beard only—a condition in which there is complete loss of hair in circumscribed areas without visible inflammation or scars. The cause of alopecia areata is unknown, though many cases give ample evidence to suggest a link between alopecia areata and the emotions. The prognosis should be guarded, though in most cases regrowth of hair does occur. The treatment is by stimulating measures, such as massage, ultraviolet rays or the application of strong medicaments, such as 10 per cent ammoniated mercury ointment. From time to time, treatment with roentgen rays is advocated, but if they are used, it must be with extreme caution by one skilled in the treatment of diseases of the skin with roentgen rays.

DERMATITIS FROM RUBBER GLOVES

To the Editor:—Of two types of surgeons' gloves commonly used in hospitals —latex gloves and the cement type of gloves—the former is made from pure gum latex imported in liquid form, while the second type is made from high grade Para rubber from Brazil imported in the form of smoked sheets. A larger percentage of hospitals are using the cement type of glove rather than the latex glove, despite the fact that comparative tests show the latex glove to be superior in tensile strength, elongation and resistance to aging. The preference for the cement type glove appears based on the idea that latex produces a greater incidence of allergic reactions among surgeons and nurses. Our investigations of this subject have not revealed any reliable proof for this assumption. Do you know of any studies which have been made on the two types of gloves to show the relative sensitiveness of skin when in contact with them? We believe that hospitals could save money by purchasing latex gloves and feel that such a recommendation should be made provided that there is no scientific proof that a pure latex gum glove is more hazardous.

Hospital Bureau of Standards & Supplies, Inc., New York.

ANSWER.—Reports of studies on the incidence of dermatitis from latex gloves as compared with cement (dipped) gloves are not available. The problem of preventing dermatitis from rubber gloves is not always as simple as the substitution of latex gloves for dipped gloves, or vice versa.

Gloves may be made from natural rubber and natural rubber latex or from the synthetic rubbers and synthetic rubber latex. There are many types of synthetic rubbers differing widely in chemical composition. Buna S is a copolymer of styrene and butadiene. Buna N is a copolymer of styrene and acrylonitrile. Neoprene G.R.N. is polymerized chlorobutadiene, and there are several other types of synthetic rubbers. Dermatitis from synthetic rubbers is more frequent than from natural rubber.

Many accelerators, antioxidants, plasticizers and other chemicals are added to all rubbers to make them suitable for gloves, and they differ in chemical composition. They are the most frequent causes of dermatitis. Rubber goods are often cured or vulcanized by exposure to the vapors of sulfur monochloride instead of to heat, and the compounds continuously being formed on the surface of vapor-cured (acid-cured) rubber may cause dermatitis. There is no one cause of dermatitis from wearing rubber gloves.

For further discussion of the subject, you may refer to: Schwartz, L.; Tulipan, L., and Peck, S. M.: Occupational Diseases of the Skin, Philadelphia, Lea and Febiger, 1947, pp. 495-517, and Schwartz, L., and Pack, S. M.: Dermatitis from Wearing Apparel, J. A. M. A. **128**:1209-1217 (Aug. 25) 1945.

IRREGULAR MENSES

To the Editor:—A 19 year old patient has never had regular periods. They vary from five to six weeks to three months. Her periods started at the age of 14 years. She is large for her age, and her parents are large also. The mother is fearful that there may be cause of underdevelopment of the female organs that might make it impossible for her to bear children. Should the condition be ignored as the girl is strong and healthy?

M.D., Nebraska.

ANSWER.—The patient deserves study from an endocrine point of view. She should have a pelvic examination to rule out pelvic pathologic conditions. This can frequently be done without one's disturbing the hymen by a one finger vaginal examination, a rectal examination and a rectovaginal examination. A narrow Pederson speculum gives adequate access to the cervix. A careful physical examination should be done with special reference to body figure, fat distribution, skin texture, presence of thyroid enlargement and breast size. Tests of basal metabolism and blood cholesterol should be done.

Possibly the drinking water is low in iodine; if that is so, sometimes patients need a little strong iodine solution to start with, and then the use of iodized table salt will give the thyroid gland adequate amounts of iodine for normal function. A basal body temperature chart, with daily morning temperature readings, and daily morning records of pulse rate records should be kept.

In the absence of any notable pathologic condition and even if the basal metabolic rate and cholesterol level are normal, one may safely give small amounts of thyroid, starting usually with ½ grain (0.065 Gm.) and increasing it gradually, with at least three to four weeks between increases in dosage, and making sure that the morning pulse rate does not run above 76 or 80 regularly. Often, with this pulse adequate protein and vitamin intake will regulate the cycle. Patients should be kept down to normal weight. Many of these patients have either anovulatory cycles or infrequent ovulations. A further check on ovulation can be made by suction biopsy of the endometrium. This is best done during the first hour or two of menstruation. Sex hormone therapy, in general, serves no useful purpose in these cases. In many of these cases the condition "straightens out" in later life, but in many it does not and it may be followed by or accompanied with sterility.

PREVENTION OF ABORTION

To the Editor:—The use of diethylstilbestrol for the prevention of abortion has become popular lately. Which drug can be substituted in those patients who become nauseated when taking diethylstilbestrol, sometimes even in small amounts? Does hexestrol have the same effect?

F. C. Katzenstein, M.D., Salem, Ill.

ANSWER.—The use of sex hormones to prevent abortion has not been proved conclusively to lower the abortion rate. Any of the female sex hormones, synthetic or natural, will produce nausea if given in large enough dosage. Usually pregnant patients will tolerate much larger dosage than nonpregnant ones, and frequently they will tolerate tremendous dosage. Diethylstilbestrol does not usually cause much nausea if given at bedtime. Frequently the nausea can be minimized or prevented by starting with smaller doses and increasing the dose daily to tolerance or to the desired dosage. One must not lose sight of the fact that there is a possibility that large doses of female sex hormones may effect a male fetus adversely.

CURLING'S ULCER

To the Editor:—Can a burn of the face, chest and arms cause a subacute condition of the gallbladder? Jabez Jones, M.D., Savannah, Ga.

ANSWER.—Superficial burns are often associated with generalized hyperemia of the mucosa of the duodenum and upper part of the jejunum which, in some cases, leads to actual ulceration, the so-called Curling ulcer. It is, of course, possible that this hyperemia and edema might extend to the mucosa of the gallbladder and induce an attack of acute cholecystitis in a patient whose gallbladder already contains stones and has had previous attacks of inflammation.

HISTAMINE IN ACHLORHYDRIA

To the Editor:—What is the prevailing opinion regarding the use of histamine in achlorhydria suspected of being due to pernicious anemia in an allergic person? The patient has had past manifestations of allergy. Recently he suffered a severe reaction from 2 cc. of B complex administered intramuscularly. Should the reticulocyte response to liver be relied on to establish the diagnosis?

G. Bruce Lemmon Jr., M.D., Springfield, Mo.

ANSWER.—Histamine-refractory achlorhydria is a constant finding in pernicious anemia and is an important diagnostic aid. Together with the history, physical examination, typical blood and bone marrow findings, and histamine achlorhydria, the reticulocyte response to liver establishes the diagnosis rather conclusively.

Histamine poisoning in man is rare and usually results from an error in dosage. Symptoms are more alarming than dangerous and consist of a precipitous fall in blood pressure, generalized vasodilatation, headache, visual disturbances, bronchial constriction, a metallic taste, vomiting, diarrhea and, in severe cases, shock. Epinephrine is a specific antagonist and will counteract all symptoms if administered quickly. If shock occurs it is necessary to restore blood volume. The dosage of histamine is 0.25 to 0.5 mg. subcutaneously in an extremity. If a severe reaction occurs a tourniquet can be applied and released slowly enough to keep the patient free from symptoms. Histamine should be used in the patient described as a diagnostic aid.

TREATMENT OF NEVI

To the Editor:—Is piecemeal electrocautery of superficial angiomas an acceptable procedure? When the flat raised wine-colored mass is about 1 inch square (2.5 cm. square) is it feasible to electrocauterize a small portion at a time, ultimately eliminating the mass? M.D., New York.

ANSWER.—Such nevi are better treated with either radium, solid carbon dioxide or even injections of sclerosing agents. Electrocautery usually is not recommended for the treatment of vascular nevi, as destruction by electrocautery will probably produce an irregular scar with a mottled surface.

RADIATION EXPOSURE IN PREGNANCY

To the Editor:—A woman physician in her second month of pregnancy does fluoroscopic examinations of her patients three times a week for about half an hour. She wears a lead apron and gloves, and the chair on which she sits has a lead shield in front. Does this exposure entail any danger for the fetus, in the early or later part of pregnancy?

I. Hirschfeld, M.D., Glen Gardner, N. J.

ANSWER.—The exposure indicated is not great and in all probability would not endanger the fetus, but it is preferable that there be no more roentgen exposure than is absolutely necessary.

OIL DERMATOSIS

To the Editor:—A patient 55 years of age, a mechanical engineer, has had numerous recurrences of multiple furunculosis since 1937. Intervals between these occurrences may be from six to eight months. A red spot occurs at onset, generally on the extensor surfaces of the skin, accompanied with itching. Twenty-four hours later it becomes papular and starts central pustulation. The patient associates onset with a heavy breath and an unusually dark stool. Usual types of treatment, including autogenous vaccine, have been without results. Is there any further treatment to be recommended?

R. S. Vivian, M.D., Beloit, Wis.

ANSWER.—Papules, comedos and furunculosis of the extensor surface of the forearms and thighs is a common occupational disease among workers who come in contact with greases, cutting oils and other petroleum oils. A mechanical engineer probably comes in contact with the lubricants used on machines, and this may be the cause of the trouble. The prevention of oil dermatoses consists in keeping the oil off the skin or washing it off immediately after contact. The use of an antiseptic cleanser, such as phemerol chloride or zephiran chloride, may prevent bacterial infection. Wearing impervious sleeves of plastic materials to prevent soiling of the arms and wearing impervious aprons to prevent soiling of the trousers will prevent oil dermatoses. The antibiotics, sulfonamide drugs and vaccine injections will not prevent the oil dermatoses. The treatment of pustules and furuncles is evacuation of the pus and application of antiseptic dressings.

CANCER DURING PREGNANCY

To the Editor:—What is the incidence of carcinoma of the cervix associated with pregnancy? Is it justifiable to take a biopsy specimen from a suspected lesion of the cervix if the patient is pregnant? Have studies concerning incidence in multiparous and primiparous patients been made?

John W. Wurster, M.D., Pocatello, Idaho.

ANSWER.—Pregnancy is complicated by carcinoma of the cervix about once in 20,000 cases, according to Nielson, and once in every 14,000 cases according to Stander. Biopsy should be done in the pregnant mother if a suspicious lesion of the cervix is present. It will not disturb the pregnancy. Carcinoma of the cervix is more common in multiparous patients.

TETANUS IMMUNIZATION

To the Editor:—How frequently should a booster dose, 0.5 cc. of tetanus toxoid, be given to a child? I have been in the habit of administering a booster dose once every year (to those allergic children under my care who are sensitive to horse proteins), but it has come to my attention recently that many pediatricians are giving a booster shot every six years unless an accident is sustained within that period.

Clifford H. Kalb, M.D., Milwaukee.

ANSWER.—After active immunization some pediatricians adhere to the procedure of giving, each year, a booster dose of 0.5 cc. of tetanus toxoid. As long as such a plan is kept in effect, immunity should be continuous. However, it now appears that a satisfactory degree of protection can be maintained if the booster dose is given only once every two years. Many accidents which seem to be trivial at the time, and yet afford a site for possible tetanus infection, are not brought to the attention of the physician. Therefore, it is well to keep the degree of immunity at a constantly high level. However, if it could be known when tetanus infection occurred in a person who had been actively immunized previously, it would be necessary only to give a booster dose of toxoid, and regular periodic booster doses of tetanus toxoid would not be required. An objection to booster doses at intervals of six years might be that within such a period a minor accident could occur, be overlooked or neglected and could be followed by tetanus, because the amount of antibody was at too low a level to provide sufficient protection.

UNDERWEIGHT

To the Editor:—In The Journal of Sept. 11, 1948, in Queries and Minor Notes, Dr. Herman Frack asked for measures to increase the weight of thin persons who are apparently in good physical condition. I have had good results in these cases by giving one injection of protamine zinc insulin daily. Treatment should be started with 5 units, and the dose may be gradually increased, if necessary, to 20 to 25 units.

As many of the patients seem to have lost their sense of being hungry, they should be warned to eat as much as possible. To avoid hypoglycemic reactions the dose of 5 units should be increased about 3 or 4 units daily; the patient should eat candy if palpitation or nervousness occurs.

With a gain in weight of 1½ to 3 pounds (0.73 to 1.3 Kg.) weekly, a sense of well-being or mild euphoria occurs. The patient is sometimes converted from a dyspeptic to a eupeptic person.

M. T. Bolotin, M.D., Chicago.